



amateur radio

Vol. 34, No. 4

APRIL

1966

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transmission by post as a periodical

25c

TRANSISTORS AND DIODES

| | | | | | | |
|--------------|------|-----|--------|--------------|------|--------|
| AC125 | 10/- | 9/6 | 95c | OC169 | 19/6 | \$1.95 |
| AC126 | 10/- | 9/6 | 95c | OC170/AF113N | 10/- | 61 |
| AC127 | 10/- | 9/6 | \$1.05 | | | |
| AC128 | 10/- | 9/6 | | OC171/AF114N | 10/- | 61 |
| AF114N/OC171 | 10/- | 9/6 | | | | |

| | | | | | | | |
|--------------|------|-----|-----|--------|------|-----|-----|
| AF115N/OC170 | 10/- | 9/6 | 95c | 2N217 | 10/- | 9/6 | 95c |
| | | | | 2N217S | 10/- | 9/6 | 95c |

| | | | | | |
|--------|-----|-----|-------|------|--------|
| AF116N | 9/6 | 95c | 2N373 | 19/- | \$1.90 |
| AF117N | 9/6 | 95c | 2N372 | 19/- | \$1.90 |

| | | | | | | |
|-------|------|--------|-------------|------|------|--------|
| AF118 | 11/- | \$2.20 | BY106/OA214 | 10/- | 16/- | \$1.60 |
| BC108 | 10/- | 8/1 | OA79 | 7/- | 4/0 | 40c |

| | | | | | | |
|-------|------|--------|------|-----|-----|-----|
| BC109 | 14/- | \$1.40 | OA83 | 3/- | 3/0 | 30c |
| OC26 | 9/6 | 95c | OC21 | 3/0 | 3/0 | 30c |

| | | | | | | |
|--------------|-----|-----|------|-----|-----|-----|
| OC35/AT1138A | 9/6 | 95c | OA90 | 3/3 | 3/2 | 32c |
| | | | OA91 | 3/3 | 3/2 | 32c |

| | | | | | | |
|-------|------|--------|-------|-----|-----|-----|
| OC44N | 35/- | \$3.50 | OA91 | 3/3 | 3/2 | 32c |
| OC45N | 11/- | \$1.10 | OA230 | 7/6 | 7/5 | 75c |

| | | | | | | | |
|------------|------|-------------|-------|--------|--------|-----|-----|
| OC70 | 12/- | \$1.20 | OA210 | 1N1703 | 1N1394 | 8/6 | 85c |
| OC71/2N215 | 7/6 | or 3 for £1 | H233 | 8/6 | | | |

| | | | | | | | | | |
|-------|----|----|------|--------|--------|----|--------|-----|-----|
| OC72 | .. | .. | 13/6 | \$1.35 | 1N3491 | 50 | p.l.v. | 18 | 8/- |
| OC74N | .. | .. | 9/6 | 95c | | | | 9/6 | 95c |
| OC75 | .. | .. | 13/6 | \$1.35 | | | | | |

| | | | | | | | |
|------|------|--------|--|--|--|--|--|
| OC75 | 13/6 | \$1.35 | | | | | |
|------|------|--------|--|--|--|--|--|

ZENER DIODES

| | | | | | |
|--------|----|------|--------|--------------|-------------|
| QAZ200 | .. | 15/6 | \$1.55 | OAZ222/BZZ14 | |
| OAZ212 | .. | 12/6 | \$1.25 | | 27/6 \$2.75 |
| OAZ213 | .. | 12/6 | \$1.25 | OAZ234/BZZ16 | |
| OAZ225 | .. | 27/6 | \$2.75 | | 27/6 \$2.75 |

POWER TRANSFORMERS

| | | | | | | |
|-------------|-----------------|---------|-------|--------|------|--------|
| 1992 | 150-0-150v. | 30 mA. | 6.3v. | 1.75s. | 37/6 | \$3.75 |
| 1993 | 225v.-0-225v. | 50 mA. | 6.3v. | 2s. | 43/6 | \$4.30 |
| 2052 | Voltage Doubler | 280 | 350v. | | | |
| | | 80 mA. | 6.3v. | 2.25s. | 67/6 | \$6.75 |
| 2054 | Voltage Doubler | 340 | 350v. | | | |
| | | 125 mA. | 6.3v. | 2.25s. | 67/6 | \$6.75 |
| 2057 | Voltage Doubler | 310 | 350v. | | | |
| | | 100 mA. | 6.3v. | 2.25s. | 83/6 | \$8.35 |
| 293-0-293v. | 80 mA. | 6.3v. | 2s. | 2s. | 27/6 | \$2.75 |
| 385-0-385v. | 100 mA. | 6.3v. | 2s. | 2s. | 33/6 | \$3.30 |
| 385-0-385v. | 125 mA. | 6.3v. | 2s. | 2s. | 43/6 | \$4.30 |

AUDIO TRANSFORMERS

| | | | | | |
|------|---------------|---------------------|--|-------|---------|
| 2624 | 7000 ohm s.e. | 300 ohm s.e. | prim. 2, 3, 7, 8, 15 ohm sec. | 46/- | \$4.60 |
| 4013 | 15 watt | 6000 ohm c.t. | 20% prim. 6.3, 7.5, 15 ohm sec. | 164/8 | \$16.46 |
| 4020 | 10 watt | prim. 6000 ohm c.t. | 20% Ultra Linear (Mullard 10-10), sec. 3.7 or 15 ohm | | |

TRANSISTOR TRANSFORMERS

| | | | | | |
|-----|--------|--------------|----------------------|------|--------|
| TD1 | Driver | 3000 ohm | 2000 ohm c.t. | 19/6 | \$1.95 |
| TD2 | Driver | 420 ohm | 0 c.t., 185 ohm c.t. | 19/6 | \$1.95 |
| TO1 | Output | 375 ohm c.t. | 3.5 ohm | 16/- | 60c |
| TO2 | Output | 97 ohm c.t. | 3.5 ohm | 10/8 | \$1.85 |
| TO4 | Output | 300 ohm c.t. | 3.5 ohm | 37/8 | \$3.75 |

FILAMENT TRANSFORMERS

| | | | | | | | | |
|-------|-------|--------|---------------------------|--------|-------|------|------|--------|
| T4/4 | 230v. | 6.3v. | 2 a. | .... | .... | .... | 32/6 | \$3.25 |
| 2150 | 240v. | 6.3v. | 2.5 a. or two by 6.3v. | 1.25s. | .... | .... | 35/- | \$3.50 |
| 2155 | 240v. | 6.3v. | 7.5v. | 8.5v. | 9.5v. | .... | .... | .... |
| | | 12.5v. | 15v. | 1 amp. | .... | .... | 48/- | \$4.80 |
| 12/64 | 240v. | 6v. | 4s. | 12v. | 4s. | .... | 50/- | \$5.00 |
| 12/66 | 240v. | 6v. | 4s. | 12v. | 6s. | .... | 57/6 | \$5.75 |

ALIGNMENT TOOLS

| | | |
|-------------|----------------------|---|
| Jabel No. 4 | Alignment Tool Kits. | All popular sizes. Four tools in plastic pouch. 12/-, \$1.20. |
|-------------|----------------------|---|

TRANSISTOR SIGNAL INJECTOR

| | | |
|---------------|---|---------------|
| Pencil Type 2 | Transistor, complete with instructions and battery. | 55/-, \$5.50. |
|---------------|---|---------------|

LAFAYETTE TE-22 AUDIO GENERATOR

Specifications: Sine wave range: 20 c.p.s. to 200K c.p.s. in 4 bands; square wave range: 5/ c.p.s. to 30K c.p.s.; freq. response: plus or minus 1.5 db. 60 c.p.s. to 150K c.p.s.; output voltage: load impedance 1M ohm 7v. (max.), load impedance 1K ohm 5v. (max.). £22.25, \$22.25.

WEED KNOCK MAKE, BRAND NEW, BANKRUPT STOCK

| Size | Voice Coil | Price |
|------------|---------------|-------|
| 3 inch | 15 or 3.5 ohm | 32/6 |
| 3 inch | 15 or 3.5 ohm | 32/6 |
| 4 inch | 15 or 3.5 ohm | 37/6 |
| 5 inch | 15 or 3.5 ohm | 43/6 |
| 6 inch | 15 or 3.5 ohm | 49/6 |
| 5 x 7 inch | 15 or 3.5 ohm | 47/6 |
| 8 inch | 15 or 3.5 ohm | 52/6 |
| 9 x 6 inch | 15 or 3.5 ohm | 55/6 |
| 12 inch | 15 or 3.5 ohm | 82/6 |

WIDE RANGE LOUDSPEAKERS

| | | |
|--------------------------------------|-------|---------|
| 5 inch Twin Cone Tweeter, 15w. | 45/- | \$4.50 |
| 7 m.s. (4300 c.p.s. to 15 Kc.) | | |
| 6 inch Twin Cone 60-16,000 c.p.s. | 53/- | \$5.30 |
| 5w., available in 8 or 16 ohms | | |
| 8 inch Twin Cone (55-16,000 c.p.s.) | 75/- | \$7.50 |
| 10 or 16 ohms | | |
| 12 inch Twin Cone (45 c.p.s.-10 Kc.) | 100/- | \$10.00 |
| 15 inch Twin Cone (30-20,000 c.p.s.) | | |
| 23w., available in 8 or 16 ohms | 195/- | \$19.50 |

SPEAKER BOXES

| | | |
|--|------|--------|
| Plastic Speaker Box, with 4 inch speaker and wire | 55/- | \$5.50 |
| Wooden Speaker Box, with 6 x 4 inch speaker and wire | 65/- | \$6.50 |

CHASSIS PUNCH SET

| | | |
|--|------|--------|
| Hozan K-43, sizes 16, 18, 21, 25 and 30 mm. Complete with taper reamer in wooden storage box | 70/- | \$7.00 |
|--|------|--------|

BATTERY CHARGERS

| | | |
|--|-------|---------|
| Dual, c.w. Meter in Metal Hammerstone Case | | |
| 6 volt 4 amp., 12 volt 4 amp. | 157/6 | \$15.75 |
| 6 volt 6 amp., 12 volt 6 amp. | 217/6 | \$21.75 |

MICROPHONES

| | | |
|---|------|--------|
| Crystal— | | |
| Piezo Lapel Type with plug | 12/6 | \$1.25 |
| CM20 Hand Type with plug | 27/6 | \$2.75 |
| X43 Stand Type with plug | 27/6 | \$2.75 |
| BM3 Penicil Type, 100-6000 c/s. with on/off switch, 6 ft. cable | 53/- | \$5.30 |
| BM3 Desk Stand to suit above | 21/- | \$2.10 |
| Dynamic— | | |
| Foster DF2 Hand Type, 50K | 50/6 | \$5.05 |
| Foster DF2 Hand Type, 50 ohm | 45/- | \$4.50 |
| Foster DF2 Penicil Type, 50K | 90/6 | \$9.00 |
| Foster DF2 Penicil Type, 50 ohm | 87/6 | \$8.75 |
| Piezo X28 Desk Type with stand, low impedance | 62/6 | \$6.25 |

BEZELS AND NEON INDICATORS

| | | |
|---|-----|-----|
| Sato 3280 6-8v. sub-miniature, red, green, blue | 4/6 | 45c |
| NZV Neon Indicator, 65v., flying leads | 3/4 | 35c |
| 237 Red Neon Bezel | 6/6 | 65c |

PARTS FOR RTV & H TACHO

| | | |
|--------------------------|-------|--------|
| Meter (MRSP), 0-1 mA. | 0/6 | \$5.00 |
| T-33 or 500 ohm 1/2 watt | extra | 15/- |
| Heir Chokey, ready wound | 22/6 | \$2.25 |
| LX Trimmer Pot | 4/- | 40c |
| Circuit Board | 6/- | 60c |

VARIABLE CONDENSERS

| | | |
|-----------------------------------|------|--------|
| Eddycone (Ceramic) 1/4 inch Shaft | | |
| Condenser, 13.5 pF. | 22/6 | \$2.25 |
| Condenser, 63 pF. | 25/6 | \$2.50 |
| Butterfly Cond. 32 x 32 pF. | 25/6 | \$2.50 |
| 3.5 Condenser, 91 pF. | 27/6 | \$2.75 |
| 3.5 Condenser, 149 pF. | 30/6 | \$3.00 |
| Transmitting Cond., 270 pF. | 52/6 | \$5.25 |

Relar (Ceramic)

| | | |
|------------------------------|------|--------|
| CB94 1/4 inch shaft, 10 pF. | 22/6 | \$2.25 |
| CB94 1/4 inch shaft, 23 pF. | 25/6 | \$2.50 |
| CB94 1/4 inch shaft, 25 pF. | 27/6 | \$2.75 |
| CB94 1/4 inch shaft, 53 pF. | 27/6 | \$2.75 |
| CB94 1/4 inch shaft, 100 pF. | 27/6 | \$2.75 |

Roblin Broadcast Gangs

| | | |
|------------------------------|------|--------|
| RMGJ Single gang, 10-53 pF. | 18/6 | \$1.85 |
| RMGJ Single gang, 10-415 pF. | 18/6 | \$1.85 |
| RMGJ Single gang, 10-415 pF. | 25/6 | \$2.50 |
| RMGJ Three gang, 10-415 pF. | 33/6 | \$3.35 |

ROTARY SWITCHES (JABEL)

| | | |
|---------------------|------|--------|
| 3-pole, 3-position | 10/- | \$1.00 |
| 4-pole, 3-position | 10/- | \$1.00 |
| 2-p. 12, 6-position | 10/- | \$1.00 |
| 1-pole, 12-position | 10/- | \$1.00 |

TRANSISTOR RADIO PARTS

| | | |
|---|--|--|
| To suit Zodiac, Grays, Tele-tone, Leacock, Metravision, Home Star and Vista (6 Transistor Radios) | | |
|---|--|--|

| | | |
|---|------|--------|
| Speaker, 8 ohm, 1/4" dia. diaphragm, power capacity 200 mw. | 22/6 | \$2.25 |
| Gang with knob, capacity: 6-142 pF. 100 pF. (oscillator) | 20/6 | \$2.00 |
| Arrial Coil on Rod | 7/6 | 75c |
| Output Transformer, 430 to 8 ohms Impedance Transformer, 8500 ohms to 3200 ohms | 15/6 | \$1.55 |
| Inductor Coil, 363 microhenry | 12/6 | \$1.25 |
| Pol., switched with knob, 5K ohms | 8/6 | 85c |
| Three 1.4. Transformers, 455 Kc. priming: 2-2N406/OC74N, 3-2N410/OC45, 1-2N406/OC71, 1-0A93 | 82/6 | \$8.25 |
| Three 1.4. Transformers, 455 Kc. priming: 2-2N406/OC74N, 3-2N410/OC45, 1-2N406/OC71, 1-0A93 | 30/6 | \$3.00 |
| Complete set resistors and condensers 430 | 42/6 | \$4.25 |
| Printed Circuit Board | 10/6 | \$1.00 |
| Cabinet, complete with earphone jack, earphone and carrying case | 25/- | \$2.50 |

CO-AXIAL CONNECTORS

| | | |
|---|------|--------|
| America Type— | | |
| PL259 Co-axial Plug | 9/6 | 95c |
| 4.87-1 Co-axial Plug (PL259, PTFE) | 14/6 | \$1.45 |
| SC-229 Co-ax. Socket (PL259) | 9/6 | 90c |
| 4.87-1 Co-ax. Socket (PTFE) | 14/6 | \$1.47 |
| 4.87-1 Co-ax. double ended female cable joint (PTFE) | 17/6 | \$1.75 |
| UG195U Adaptor for PL259, to suit 6 Transistors and 1 Diode (com- plete set resistors and condensers) | 2/6 | 25c |
| C32-17 Co-ax. "T" Piece, suit PL259 | 23/6 | \$2.35 |
| BNC Series— | | |
| UG39CU Co-axial Plug (PTFE) | 15/6 | \$1.58 |
| UG39U Co-axial Socket (PTFE) | 12/6 | \$1.25 |
| B-Ling Lee Type— | | |
| Co-axial Plug (suit 1/4 inch cable) | 4/- | 40c |
| Co-axial Socket | 3/6 | 35c |
| Co-axial Socket (flush mount) | 3/6 | 35c |
| Co-axial Cable Joiner (female) | 4/- | 40c |

THIS MONTH'S SPECIAL

CRYSTALS

| | | |
|--|--|--|
| FT243 Holders—As New | | |
| Ex CR3536/BCG11 Walkie Talkies | | |
| 4789 Kc. 4725 Kc. 4893 Kc. 5365 Kc. 5780 Kc. | | |
| 5885 Kc. 5915 Kc. 5935 Kc. 5970 Kc. 5152 Kc. | | |
| 4475 Kc. 4740 Kc. 5295 Kc. 5397 Kc. 5820 Kc. | | |
| 4675 Kc. 4832 Kc. 5327 Kc. 5860 Kc. 6235 Kc. | | |
| 4635 Kc. | | |
| 7.5 each or 3 for £1.75, or 3 for £2. | | |

DC11 Holders

| | | |
|----------------------------|--|--|
| 5930 Kc. 6420 Kc. 5930 Kc. | | |
| 12/6 each or £1.25. | | |

WIM RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.

"AMATEUR RADIO"

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FEDERAL COMMENT



CONVENTION AGENDA

As Easter once more approaches, we realise that another Federal Convention is about to take place—this year in Queensland—and as far as records show, the first time ever in that State. For some time prior to the Convention, Divisions have been literally scratching their heads wondering what they shall raise in the way of Agenda items.

It has been evident for many years that a number of items in the category of "hardy annuals" will again appear and that yet others will have been hastily thought of at the last minute and included in an effort to save "Divisional face." Whilst the latter situation should be avoided to save valuable time at Conventions, these items nonetheless receive the same attention and consideration as well-thought-out motions dealing with the more important and urgent matters of policy.

The Oxford Dictionary defines a Convention as a formal assembly for deliberation or legislation on important matters and further as an assembly of delegates or representatives at conference. While the stress is on the discussion of "important matters," there are other benefits to be derived from a Convention which are not revealed in definitions. These are the meeting of the delegates in person and being able to discuss both formally and informally mutual problems. It is also being able to inform the other delegates of the background to certain motions which may appear both specious and unimportant on paper. Despite these additional benefits from Conventions, a number of relatively unimportant matters still appear year after year which could be just as easily conveyed in writing during the year.

The foundations of our Institute are now quite old and we should now be grown-up enough to base future Conventions on policy and important administrative matters which are not easily sorted out by correspondence. Matters dealing with the Constitution, attracting new members, new types of licence, regulatory matters of Amateur operation are all subjects on which more time could be spent with profit at the Conference table without the Chairman having to hurry discussion along to more mundane and trivial matters.

The matter rests entirely in the hands of the Divisions as to what matters they commit to Convention agenda or submit by correspondence. The attitude should not be—we will look foolish if we don't submit about ten items; it should be—can we get an answer to this problem by postal motion or is it contentious enough for discussion at a Convention. The guiding thought for the future should be—one good motion on the agenda is worth ten trivial motions.

—W. T. S. MITCHELL, FEDERAL COMMUNICATIONS MANAGER.

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MODIFYING THE PALEC VALVE AND CIRCUIT TESTER

G. WALL*

IF you have a "Palec" VCT or VCT-V you most likely have lamented the fact that it has not been able to keep pace with the output of modern valve types.

It is probable that you have also contemplated or obtained adaptor panels or adaptor panels, only to find that they, too, have been outmoded by later types of valves.

This trend can keep on going, and probably will "ad infinitum" or "ad-nauseum," depending on your point of view.

The first problem in modifying the unit was "how many switches?" This presented a problem, because how many valve connections are the future valves going to have? Our "crystal ball" video circuits broke down, but as advertisements for 10-pin types have been seen, it was decided that this should be a start.

A 12-pin socket and plug were obtained and installed on the front panel to connect the adaptor panels into the tester, this then prompted the installation of 12 switches, and although a

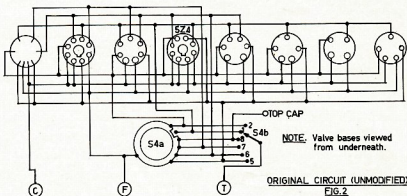
centre of the meter, approximately 3½ inches from the top of the panel. Cut a suitable piece of metal to fit the space from this position to the top of the panel.

Mount the switches on this sub-panel, either side of the meter opening, and after cutting the original panel to accommodate the switches, fix the sub-panel in place.

With the switches mounted in position, thread a wire (18-16 s.w.g. tinned copper) through the switch lugs as shown in Fig. 3 and reconnect to the original tester circuit removed from the valve sockets and element short switch, as designated (F) Filament, (C) Common, and (T) Test.

Bridge lugs 1 and 7 (Fig. 3) on each switch, as viewed from the top of panel and connect this bridge wire to the appropriate valve pin and 12-pin socket pins, left on the top panel, for extension to the external adaptor panels.

The circuit of Fig. 4 shows the actual switch connections, for two of the four positions of each switch, from which it will be seen how each valve element can be selected, to be (A) left connected to common filament; (B) left in an open position; (C) selected for filament voltage, or (D) selected for test, for either "emission" or "element short", depending on the position of the function switch selector at the bottom l.h.s. of the unit.



ORIGINAL CIRCUIT (UNMODIFIED)
FIG. 2

The main trouble with the valve tester (Palec) is that where valves have electrodes connected to more than one base pin the tester will show an "element short" and in most cases cannot be tested.

While this instrument is not the ultimate in valve testing, there is no doubt that it is still a useful piece of equipment. It has retained its usefulness and its value even second or third hand from the original purchaser.

As new, these units were approximately £21-£22, and 20 to 25 years later still cost about £10 to £15 secondhand, depending on condition, furthermore the demand exceeds the supply.

With this in mind, prompted by a modern type with switching to isolate each valve element, enquiries were made to find some of these switches to bring the "Palec" up to date, to cope with as many valve types, past, present and future.

Finally, it was found that "Astronic Imports" (Melb.) had a few, but obligingly obtained a complete set of "Tech" TC-2, 2-pole 4-position, slide-type switches for the job, also a few more for stock, and mentioned that more could be obtained freely if required.

Your adaptor panels will still be required, because when the switches are installed in the front panel, there is no room for more than a couple of valve sockets, but valves with electrodes connected to more than one pin can be tested with the modified unit.

tight squeeze on the "Palec" front panel, six switches can be put either side of the meter at the top of the panel.

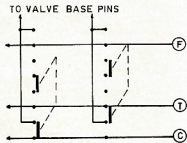
How each individual modifies his unit may vary a little, but as space is limited it is suggested that the following be given some thought.

Remove all valve sockets as a start, together with the "Selector Switch" (S-4a-4b) as this will no longer be required. (See Fig. 2.)

Move the "Ohms Adj." pot. into the "Element Selector Switch" position, and install the neon test lamp into the "Ohms Adj." hole.

The top cap connection can be moved to any convenient position or beside the neon globe and will clear the top of the panel for the switches.

In most "Palec" testers there is a plated or painted strip just above the



SCHEMATIC SWITCHING CIRCUIT
FIG. 4

To enable you to follow the switching, and for trouble shooting, the complete circuit has been included (Fig. 1) (we think for the first time) together with component values.

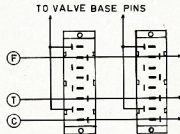
After having completed the wiring modification and re-checking, tests may be made.

While most owners of these units will be conversant with the testing drill of the original wiring, a few suggestions in operation for the sake of completeness are added.

To test valves: Set all switches in the common position.

Set selector switch to "Line switch," adjust "Line Adj." to full scale meter deflection.

Ascertain to which pins the valve filaments are connected, set filament



REAR VIEW OF
ELEMENT SELECTOR SWITCH
FIG. 3

(Continued on Page 14)

* 34 Railway Crescent, Moorabbin, Vic.

ELEMENT SELECTOR SWITCH CONNECTIONS TO CORRESPONDING PIN OF ALL VALVE SOCKETS

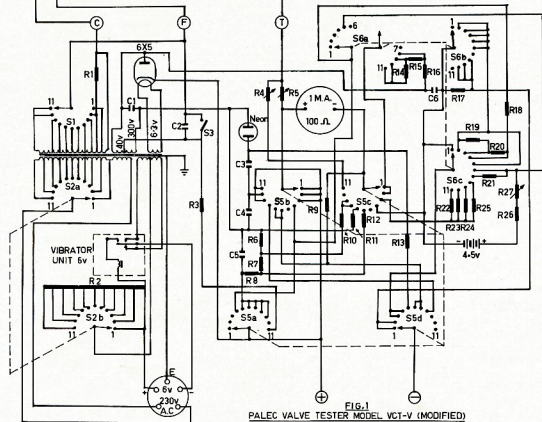
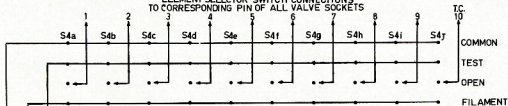


FIG. 1
PALEC VALVE TESTER MODEL VCT-V (MODIFIED)

CONDENSERS

C1—0.01 μ F. 2000v.
C2—0.01 μ F. 350v.
C3—0.01 μ F. 350v.
C4—0.005 μ F. 350v.
C5—0.5 μ F. 350v.
C6—2.0 μ F. 350v.

RESISTORS

R1—1.0 ohms
R2—0.52 ohms total
R3—25K
R4—250 ohms w.w.
R5—50 ohms range
R6—5K
R7—25K
R8—4K
R9—20 ohms
R10—225K
R11—50K
R12—5K
R13—25K
R14—210K
R15—123K
R16—6.0K
R17—283K
R18—0.444 ohms
R19—10 ohms
R20—0.687 ohms
R21—3.8K
R22—1 meg.
R23—250K

R24—100K

R25—9.9K
R26—300 ohms
R27—1K var.

SWITCHES

S1—Filament Volts.
1 1.4 volts
2 2.0 "
3 2.5 "
4 3.3 "
5 4.0 "
6 5.0 "
7 6.3 "
8 7.5 "
9 12.5 "
10 25.0 "
11 25.0 "
S2—Line Adjust.
1 195 volts
2 200 "
3 205 "
4 220 "
5 225 "
6 230 "
7 235 "
8 240 "
9 245 "
10 250 "
11 255 "
S3—Press for Merit

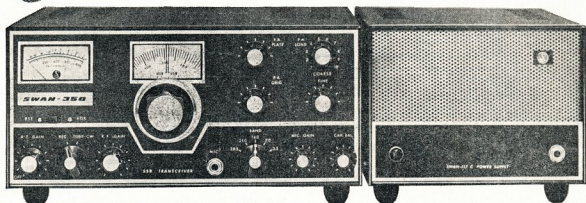
S4—Selector.

Section S4b connects one valve element to meter or neon whilst S4a connects the remainder to filament volts a.c.
Note: S4a and b is replaced in modified circuit with switches S4a b c d e f g h

S5—
a c d.
1 output volts
2 a.c. volts
3 d.c. volts
4 mA—ohms
5 Paper condensers
6 Electrolytic—25v.
7 Electrolytic—500v.
8 Megohms
9 Line Check
10 Element Shorts
11 Merit Test
S6—
a b c.
(Section a 2—5 x 1 successive).
(Section b, c 2—11 x 1).
1 1 mA.
2 10 mA.
3 100 mA.
4 500 mA.
5 Low ohms
6 Ohms x 1
7 Ohms x 10
8 10 volts
9 100 volts
10 250 volts
11 1000 volts



"SWAN" NEWS



Congratulations to the organisers of the Gosford Field Day, a really wonderful day greatly enjoyed by everybody including the writer. This show is one of the best, if not the best we have attended, especially good wishes to the XYL's for their wonderful catering.

Of course "SWAN" was there, in cars, and on our stand were several SW350 transceivers and associated equipment. Some sets were partially dismantled so that the very excellent workmanship and high quality components of this equipment could be admired. Good DX was worked all day from 8.30 in the morning until 4.30 in the afternoon, the most distant stations worked being: Spain EA8, Alaska and Laos, and of course many V and Pacific Island stations. Most people were astounded at the results obtained on our lowly Dipole antenna, approximately 8 ft. to 10 ft. high, but this is common practice with the Swan SW350 and SW400 transceivers as anyone who sees us at radio shows will admit.

We have just been advised that the U.S. Navy has placed orders for Swan equipment as back up for Collins, so with the tremendous popularity of the SW350 Swan are indeed very busy. Do you know that one person in 10 at Swan is engaged in quality control? This accounts for the extremely high quality of this equipment.

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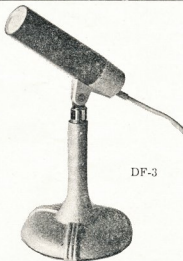
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|-------------------------------|------------------------------------|
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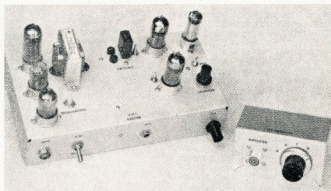
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AN A.M.-C.W. EXCITER FOR 144 Mc.*

A CLEAN SIGNAL FOR THE AB1 LINEAR

DOUG DeMAW, WICER

The exciter described in this article will provide a chirp-free, shaped c.w. note and will produce a well-modulated a.m. signal. Used either as a low-power transmitter, or as a driver for an a.m. linear amplifier, this unit can satisfy a host of needs in the v.h.f. station. R.f. isolation protects the speech and modulator stages from the feedback ills that are common to many v.h.f. phone rigs.



A top-chassis view of the low-power exciter. Shown at the right—a 5-watt step attenuator for reducing the output of the exciter when used with a linear amplifier.

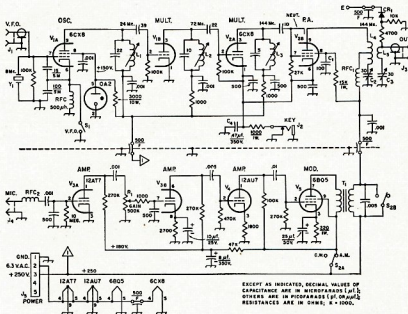


Fig. 2—Schematic diagram of the 3-meter assembly. Resistors are 1/4-watt composition type unless otherwise noted. Capacitors are disc ceramic except those bearing polarity markings, which are electrolytic. F indicates feedthrough type. SM is silver mica.

- C1—100-pf. disc ceramic with pigtail cut to 1/4-inch length.
- C2, C3—20 p.f. variable (Hammarlund MAC-30).
- C4—47- μ F mylar or moulded paper capacitor.
- CR1—1N34A.
- E—One terminal of feedthrough capacitor.
- J1—BNC chassis receptacle (UG-290/U).
- J2—Closed-circuit key jack.
- J3—Co-axial chassis connector (SO-239).
- J4—Microphone connector.
- J5—3-pin male chassis connector (Amphenol 86-CPS).
- L1—11 turns No. 24 enam. close wound on 3/8-inch diam. iron-slug form.
- L3—5 turns No. 24 enam. close-wound on 1/4-inch diam. iron-slug form.
- L3—2 turns No. 20 bus wire, spaced to occupy 1/4-inch area on 1/4-inch diam. iron-slug form.
- L4—6 turns No. 20 bus, 1/8-inch diam. x 1 inch long, centre tapped.
- L5—2 turns No. 22 insulated hook-up wire, 3/8-inch diam. inserted into centre of L4.
- R1—0.5 megohm control, audio taper.
- RFC1, RFC2—1.8- μ H r.f. choke (Ohmite Z-144).
- S1—S.p.d.t. slide switch.
- S2—D.p.d.t. toggle switch.
- T1—5-watt modulation transformer (Stancor A-3812 using one half of centre-tapped winding as primary).
- Y1—8-Mc. fundamental crystal.

A GREAT deal of information has been published with regard to proper operation of linear amplifiers, but some Radio Amateurs are not aware of the importance of the signal quality required from the exciter unit. Unfortunately, the defects present in the output signal of the exciter are magnified by the linear amplifier. Because of this, a number of somewhat horrendous signals are heard on the various Amateur Radio bands. For a.m. linear operation, the r.f. output from the exciter must be free from hum, spurious energy and improper modulation characteristics. The c.w. signal, which is used to excite the linear amplifier, must be similarly clean, and without key clicks and thumps.

This article describes a low-power a.m./c.w. exciter, tailored to use with Class AB1 linear amplifiers, and capable of producing a clean excitation source for this mode of operation. A description of an attenuator box is included in the text. It will permit swamping out of excessive driving power to the amplifier used, and is suitable for a.m. or c.w. operation. It will work well with the equipment described in this article, but can also be used with other exciter/linear-amplifier combinations.

THE CIRCUIT

Two 6CX8 tubes are employed in the r.f. section of the exciter (Fig. 2). Sufficient power output is developed to fully excite a 4CX250 tube, operating in the AB1 mode. A regulated screen voltage is supplied to the oscillator stage (V1A) to prevent chirp, caused by the changes in power-supply voltage, during c.w. operation. This same feature contributes to better stability of the a.m. signal. The crystal v.i.o. switch, S1, converts V1A from an oscillator to an amplifier when the switch is placed in the v.i.o. position. An external v.i.o. can then be attached at J1, supplying an 8 or 24-Mc. signal to the exciter. With S1 in the crystal position (open), standard 8-Mc. crystals can be used for frequency con-

* Reprinted from "QST," Sept. 1965.

trol. The tuned circuits, L1, L2 and L3, have sufficiently broad response to permit output frequency excursions of 1 Mc. without need for retuning the stages. A gimmick capacitor is used to neutralise the p.a. stage (V20) and is necessary if stable operation is to be secured. The screen-grid capacitor, C1, is series-resonant at 144 Mc. and aids in stabilisation of the output stage. For c.w. operation, the cathodes of V2A and V2B are connected in parallel and keyed at J2. A shaping network, consisting of a 0.47 μ F. capacitor and a 1000-ohm resistor, is connected between the keyed cathodes and the key jack. This network eliminates make-and-break clicks, resulting in a well-shaped keying characteristic. An r.f.-sampling test point (E) is available for tuneup of the exciter.

Special attention was given to the audio section of the exciter in an effort to reduce distortion to a minimum, while making certain that 100 per cent. modulation was possible. The modulator is capable of producing far more audio than is necessary, which permits the 6BQ5 tube to operate below the point where distortion becomes a significant consideration. R.f. filtering is used at J4, and at the grid of V3B, to prevent the squealing and howling common to many v.h.f. transmitters. Additional r.f. isolation is offered by the shield partition which divides the two halves of the chassis. The inter-circuit wiring, which passes through this shield, is routed through FT (feed-through) capacitors to aid further in decoupling. Three stages of speech amplification are used, to avoid having marginal speech gain—a shortcoming of many v.h.f. transmitters. The values chosen for the coupling capacitors, grid resistors and plate resistors in the modulator will provide optimum response in the 400 to 3000-cycle range. This system helps to eliminate the hum component in the signal while passing the most effective portion of

the voice range. Switch S2 disables the modulator during c.w. operation and shorts out the secondary winding of T1.

The power supply requirements for the exciter are 250 volts at 150 Ma. and 6.3 volts at 3 amperes. A measured r.f. power output of 2.1 watts was secured using a Thru-line watt-meter terminated by a 50-ohm non-inductive dummy load.

CONSTRUCTION

The 2-meter exciter is built on a $9\frac{1}{2}$ x 5 x 2-inch aluminum chassis. The circuit wiring in the r.f. section of the chassis should be carried out in the manner shown in Fig. 3. All leads carrying r.f. should be kept short and

direct as possible, to maintain the possibility of stray inductance. Similar treatment should be given to the leads on the various bypass capacitors and resistors used in the r.f. circuitry.

Two crystal sockets are mounted on the chassis to facilitate using both the popular FT-243 units and the less-common pin size of another war-surplus type crystal. Since the latter was added as a convenience for the author, it is not necessary for the constructor to include the extra socket.

The v.f.o. input jack, J1, and the crystal/v.f.o. switch are located on the rear apron of the chassis near V1. Ceramic tube sockets are used at V1 and V2, reducing r.f. losses in that part of the circuit. The key jack and its related shaping network are near the front edge of the chassis. The plate-tank inductor and capacitors C2 and C3 are to the left of this area (Fig. 3). The r.f. output jack, J3, is located on the rear of the chassis and is connected to L5 through a short length of 50-ohm subminiature co-axial cable.

Turning next to the audio portion of the assembly, the microphone conductor and phone/c.w. switch are on the front wall of the chassis. The modulation level control is mounted on the top surface of the chassis and is adjacent to V3 and S2. The power-supply connector, J5, is located on the rear wall of the chassis, near the 6BQ5 modulator tube. Test point E is between C3 and OA2 voltage-regulator tube. An aluminium plate, with four rubber feet attached, is used to enclose the bottom of the chassis after the final testing is completed.

TUNE-UP AND OPERATION

Prior to applying the B-plus and filament voltages to the completed exciter, place the tubes in their sockets and adjust coils L1, L2 and L3 to resonance with a grid-dip meter. The correct frequency for each of these inductors is shown in Fig. 2. Next, attach a dummy load at J3 and apply

Fig. 4 — Close-up view of the r.f. attenuator assembly. The pilot lamps are mounted in $\frac{3}{8}$ -inch rubber grommets.

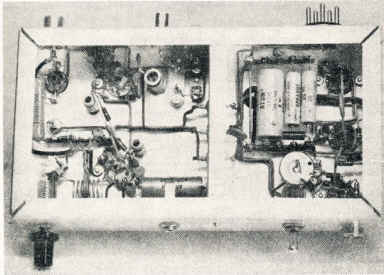
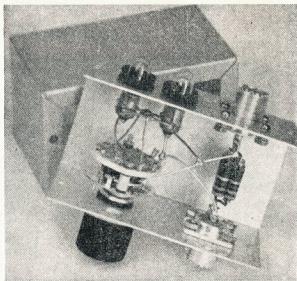


Fig. 3—Under-chassis view of the exciter, showing the r.f. circuitry in the left-hand compartment. The modulator is contained in the boxed-in area on the right.

power to the unit, using either crystal or v.f.o. control. The power swamper described later in this article will serve as a dummy load during tuneup and testing. A v.t.v.m., adjusted to read 0-15 volts d.c., can be attached between test point E and ground. Observing the reading on the v.t.v.m. meter, adjust L1 through L5 for maximum indication, which should be in the region of 5 volts after all stages are peaked. The spacing between L4 and L5 can be adjusted until optimum power output is secured.

The next step will be to neutralise the p.a. stage. Temporarily disconnect the plate and screen voltage from V2B and attach a sensitive r.f. sampling device at J3. The detector can be a 2-meter field-strength meter connected to the exciter by a short length of coaxial cable, with a 50 or 100-micro-ampere meter for an indicating device. Instruments of this type are described in the A.R.R.L. Handbook, under Measurements. Then the neutralising stub (black wire to the immediate right of L4 in Fig. 3) is moved back and forth near L4, with the exciter operating in the c.w. position, until a minimum reading is noted on the neutralising indicator's meter. The spacing shown between the stub and L4, in Fig. 3, is typical.

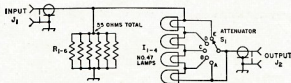


Fig 5—Schematic diagram of the r.f. attenuator.

I1, I4, inc.—No. 47 pilot lamps.
J1, J2—Co-axial chassis connectors (SO-238).

R1-R5, inc.—330-ohm, 1-watt carbon resistors.
S1—Single pole, 5-position ceramic wafers switch, non-shorting.

In checking the modulator portion of the circuit, a No. 47 pilot lamp can be substituted for the dummy load at J3. Tune the transmitter for maximum bulb brilliancy by adjusting C2 and C3. With a crystal or ceramic microphone connected to J4, and with the switch S2 in the voice position, adjust R1 while speaking into the microphone. When the bulb shows an increase in brilliancy (about 25 per cent.), a suitable setting for R1 will have been reached. Further adjustment of the audio level can be carried out with the help of other stations after the transmitter is placed in actual on-the-air operation. If an oscilloscope is available, a more satisfactory setting for R1 can be established and will permit thorough evaluation of the exciter's waveform. This method is recommended if 100 per cent. modulation is desired.

THE SWAMPING DEVICE

Operating conditions for the transmitter are as follows: Oscillator plate current, 18 Ma.; tripler plate current, 10 Ma.; doubler plate current, 8 Ma.; final grid current, 1.5 Ma.; amplifier plate and screen current (combined value) 34 Ma.; modulator plate current, 50 Ma.

In some instances it will be desirable to include provision for attenuating the output signal from the exciter before applying it to a linear amplifier. It is better to "swamp out" a portion

of the excess r.f. drive than to detune the last stage of the exciter, or grid circuit of the linear, in an effort to reduce the level of signal input to the amplifier. The modulator portion of the exciter should at all times have a proper load to look into, which can only be maintained by permitting the p.a. stage to draw normal plate current. Do not reduce the coupling between L4 and L5 in an attempt to lower the output from the exciter unless the level of modulation is similarly altered.

If too much drive is available for your linear amplifier, the unit shown in Fig. 5 can be used. The swamper is housed in a 2½ x 2½ x 4-in. Minibox and has a step-attenuator switch which places as many as four No. 47 bulbs in series with the exciter's output. A 55-ohm dummy load, consisting of six 330-ohm 1-watt resistors, is permanently bridged across the input terminals of the swamper. This provides the exciter with a constant load and further attenuates the output signal. Depending upon the efficiency of the grid circuit in your linear amplifier, this accessory may or may not be required. The circuit for the swamper is given in Fig. 4. A more sophisticated version of this device, suitable for s.s.b. operation as well, can be

found in the 1965 edition of the A.R.R.L. Single Sideband Manual, page 228.

SOME FINAL THOUGHTS

The a.m./c.w. exciter can also be used as a low-power 2-meter transmitter for local operation, portable work, or during field-day activities. As an exciter, it will lend itself nicely to application with the 4CX250 2-meter linear amplifier described on page 11, February 1964, "QST." Other tubes, such as the 4X150A, operated Class AB1 can be driven to full rated input by this little exciter. By making appropriate modifications to the heater wiring, this unit will serve as a mobile transmitter. If you're interested in generating a clean a.m./c.w. signal for amplification by a linear amplifier—try this one. The usual circuit "bugs" have been eliminated.

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Specifications:

Freq. range: 120 Kc. 130 Mc. on fundamentals. Calibrated harmonics: 120-390 Mc. R.F. output: 0-100,000 μ V., adjustable (120 Kc.-38 Mc.). Modulation freq.: 400 and 1,000 c.p.s., a.f. output adjustable. Crystal oscillator: 1 Mc. to 15 Mc. Tube complement: one 12BH7, one 6AR5. Accessory: one 75 ohm cable. Power supply: a.c. 50/60 c.p.s.; 100v., 115v or 230 v. as specified; 13VA. approx. Size: 27.5 x 19 x 11.5 c.m. ($10\frac{1}{2}$ x $7\frac{1}{2}$ x $4\frac{1}{2}$ in.). Weight: 2.75 kg. (6.1 lb.).

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D.C. mA.—3, 3, 30, 300.
D.C. Amps—3, 12. A.C. Amps—3, 12.
Ohms—10K, 100K, 1 meg, 10 meg.
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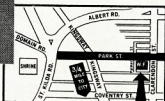
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SOME LOW-PASS FILTER DESIGNS FOR AMATEURS

J. McL. VALE,* VK5ZP

INTRODUCTION

In the last ten years or so the tremendous capacities of the modern digital computer have caused radical changes in the techniques of filter design and analysis.

The old image-parameter method of design, which Amateurs will have seen in the A.R.R.L. Handbook, is now quite out of date. No matter how closely the element values of an image-parameter designed filter agree with the design, the filter response, and in particular the attenuation outside the passband, will be significantly poorer than that hoped for in the design. In other words, filter design by the image-parameter method is imprecise and approximate.

Modern filter theory has discarded all the approximations of the image parameter method. It is now quite justifiable to attribute deviations between the response computed and that measured in practice to element value tolerances. Further, filters designed from modern filter theory will be more economical in the number of elements (capacitors, inductors) used.

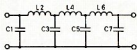
This article will give details of three low-pass filters. The author does not, at the moment, have the time for a more complete article, but if sufficient interest is shown he contemplates writing one in a few months time.

THE FILTERS

The basic circuit is shown in Fig. 1. The three filters described will have the following characteristics:—

- (1) Maximum v.s.w.r. in passband = 1.10.
- (2) Cut-off frequencies:
Filter 1 35 Mc.
Filter 2 56 Mc.
Filter 3 150 Mc.
- (3) Input and output impedances—50 ohms.

FIG. 1. SEVEN ELEMENT LOW PASS FILTER.

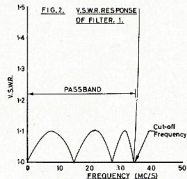


Computation of the element values requires specification of the parameters listed above. Conversely, changing either or both the cut-off frequency and the input-output impedance will require re-calculation of the element values. However, it will be shown later in the article that such calculations may be done easily with a slide rule or pencil and paper.

The reader will see what is meant by the first characteristic—maximum v.s.w.r. in passband—by examination of Fig. 2, which shows the v.s.w.r. of Filter 1. Note that the v.s.w.r. of the

filter is the v.s.w.r. measured at the input terminals of the filter when the output is terminated by 50 ohms (or whatever the specified output impedance is).

The cut-off frequency is defined to be that frequency at which the filter v.s.w.r. rises above the value specified as the maximum in the passband—see Fig. 2 again.



The attenuation of the three filters is shown in Fig. 3. Possibly the cut-off frequencies could be lowered somewhat, but it was thought that some allowance should be made for constructional errors. However, if you think you can get away with it, cut-off frequencies of 30, 54 and 148 Mc. would be ideal. As they stand though, the filters should be quite suitable, especially the h.f. filter (Filter 1) and the six metre filter (Filter 2).

The response of the two metre filter (Filter 3) is not very satisfying, although it is optimum for a seven-element filter. Adding two or four

more elements would improve its response, but the element values would then be quite different and the author just does not have the time to calculate them at present.

The attenuation graphs are a little misleading in one respect—the attenuation does not fall to zero in the passband; in fact the attenuation in the passband (neglecting coil losses) is so small that it cannot be shown on the graph.

ELEMENT VALUES

| Element | 1 | 2 | 3 | Units |
|---------|--------------------------|------|------|-------|
| C1 | 72.5 | 45.3 | 16.9 | pF. |
| C2 | 159 | 99.4 | 37.1 | pF. |
| C3 | 159 | 99.4 | 37.1 | pF. |
| C4 | 72.5 | 45.3 | 16.9 | pF. |
| L1 | 317 | 198 | 73.9 | nH. |
| L2 | 371 | 232 | 86.6 | nH. |
| L3 | 317 | 198 | 73.9 | nH. |
| | 1 pF. = 10^{-12} Farad | | | |
| | 1 nH. = 10^{-9} Henry | | | |

Tolerances: Plus or minus 1% tolerance on element values will not degrade response markedly. Capacitors then should be no problem.

The inductors are best made by bringing them to resonance with the filter capacitors. That is,

For Filter 1—

C1 and L1 resonate at 33.2 Mc.
C2 and L2 " " 20.8 Mc.
C4 and L3 " " 33.2 Mc.

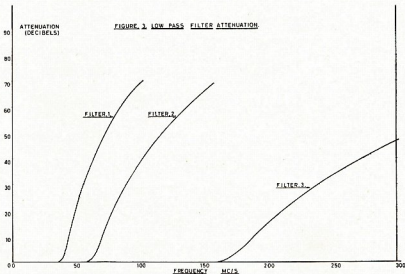
For Filter 2—

C1 and L1 resonate at 53.1 Mc.
C2 and L2 " " 33.2 Mc.
C4 and L3 " " 53.1 Mc.

For Filter 3—

C1 and L1 resonate at 144.2 Mc.
C2 and L2 " " 89.3 Mc.
C4 and L3 " " 144.2 Mc.

(Continued on Page 12)



* 29 Calton Road, Gawler East, South Aus.

SWAN SW350 MARK III.

My competitor seems to be quite upset by the effect of something he started himself when he introduced the Swan 350 Mark II. in July, 1965. This was when Swan Co. of California added full 10 M. coverage, VFO trimmer and VFO ceramic coils to their transceivers, but Swan Co. never made a distinction between their earliest and latest models SW350—they are all plain SW350 to them.

However, these first modifications to the SW350 did not fully cure the drift in the VFO and Swan Company admitted that in a Service Bulletin dated 1st October, 1955. Incidentally, you will not get a copy of that Bulletin, regardless of whether your set is registered in California, where it should be registered, or in Sydney. Swan Company stated that the VFO drift was their major problem with the SW350, regardless of the ceramic VFO coil forms, and then decided, in October, 1965, to cut a hole in the transceiver bottom cover, mounted the VFO transistor on a separate panel against the bottom plate as heat sink and, at the same time, incorporated for the first time in their 4 years' history, a crystal filter unit made elsewhere. This new filter has a narrower and different filter passband response, a feature that others apparently overlooked entirely. I considered these modifications just as important as the reasons for the Mark II classification and christened this latest Swan SW350 the Mark III. However, I did not start this ball rolling and it is too bad that one's own medicine now tasted bitter.

Anyway, this "retailer," who imported over 150 transceivers in 2 years' operation, will continue to be on the alert for significant new developments in Swans and other overseas brands, and will announce the Mark IV, whenever justified. This is in compliance with my self-assigned task to bring the Australian Amateurs the best available at the lowest cost. Without my activities the public would most likely still be paying at the 1963/64 rate of £270 for a U.S. \$275 single-band transceiver and £285 for a U.S. \$320 tri-band transceiver instead of much more value now in a U.S. \$395 five-band transceiver for even less money. Import duties and sales tax burden the cost of imported equipment already more than many purses can afford and the local tariff-protected manufacturers apparently cannot compete. I personally brought the first Swan SW350 transceiver, ever imported in Australia, to two Sydney firms with a blank order to make me 50 similar sets, but they never made me a quote.

As added features from now on my Swan SW350 Mark III. will include USB/LSB sideband selection and a 100 Kcs. crystal calibrator at no extra cost. Also the Galaxy V. will have the crystal calibrator as standard equipment, making both five-band S.S.B. transceivers real bargains at A.\$600, which also includes a heavy duty 240v. a.c. supply/speaker unit in matching cabinet.

Yes, sideband selection and crystal calibrators as standard equipment at no extra cost!

This "retailer," exclusive importer of Galaxy, Drake, Aztec, Hy-gain and Autronic, appointed distributor by the world-wide export agent for Swan Co., with more new and interesting lines to be introduced in future (German origin) continues to offer fully imported gear at the lowest prices, with full after-sales service and warranty. Unsolicited comments by:

- (a) "I have built several electronic keyers and have closely examined your Autronic, but cannot fault it, a marvellous unit."
- (b) "With my large full size 40 metre rotary beam I pick up strong local signals outside the Amateur bands that produce spurious responses in other transceivers, but not in the Galaxy III. when properly aligned."

CURRENT EQUIPMENT IN STOCK

Swan SW350 Mark III. or Galaxy V.: USB/LSB sideband-selection, 100 Kcs. crystal calibrator and 240v. a.c. supply speaker unit included, A.\$600.

AZTEC 12v. d.c. supplies, A.\$90 and A.\$110.

Webster Bandspanner, all-band centre-loaded whip with bumper or body mounting assembly, A.\$48.

Hy-gain fully imported antennae:

10/15/20/40 meters vertical, 14AVQ, A.\$44. 10/15/20/40/80 meters vertical, type 18AVQ, A.\$70. 10/15/20 M. 3-element junior beam, TH3JR, A.\$96, same as senior model "Thunderbird" TK3 Mk. 2, A.\$140. 6-element 10/15/20 M. beam, type TH6DX, A.\$200. Hy-gain mobile mounts in various types.

Antenna-rotators: Alliance U-98, A.\$55; CDR TR-44, A.\$90; CDR Ham-M, A.\$180. All for 230 v. a.c. with indicator/control units.

USED EQUIPMENT, RECONDITIONED A-1

Heath HW-22, 40 M. single band Transceiver, has VOX control, A.\$170.

Collins KWM-2 with Collins PM-2 a.c. supply/speaker, Collins 12 v. heavy duty d.c. supply and Collins mobile-mount. A real bargain, A.\$1000.

Hallicrafters HT-37 all band S.S.B. Transmitter, A.\$275.

Hallicrafters SX 111 Amateur bands A.M./C.W./S.S.B. Receiver, A.\$175.

—Arie Bles.

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SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK5NN

S.S.B. CONVENTION

The second Sidebanders' Convention was held at Hamilton, Victoria, during the long week-end at the end of January, when about 60 users of the s.s.b. mode of transmission gathered. These meetings will be held probably every two years, as those present consider this gives them the opportunity to get along every time. The first was held in May, 1964. The main organiser for the recent function was Ern VK3AEM, assisted by Dan 3ADD, Tim 3TW and last but not least, Ian, an enthusiastic listener.

The main feature of this Convention was its informality to give people a chance to get to know better those whom they have contacted over the air. The Buffet Dinner on Saturday evening and the following Sunday morning lectures were enjoyed by all. Delegates with mobiles were "talked" into Hamilton via the station lent by Fred 3YS.

Lectures were delivered by Geoff VK3AY on "Mobile Antennae," Arie VK2JA on "Recent Trends in Sideband Equipment" and Phil VK5NN on "The Complete Sidebander," after which delegates departed for home, although a few remained at the motel for an extra night to enjoy additional Hamilton hospitality and travel home on the Monday holiday.

Those who missed going to Hamilton '66 should make a note to book in early for Hamilton '68, which is sure to be bigger and better.

LINEAR AMPLIFIERS

Following many requests, the next few months of sideband notes will be devoted to the subject of amplification of the final frequency single-sideband signal, from the low level output of the last mixer in the transmitter, to the full power of some hundreds of watts "peak envelope power" (p.e.p.). I shall not state here what the actual power level permitted by the P.M.G.'s Department is, as this is not yet defined and is the subject of current negotiations with the Department. What ever this level will be, the principles will be the

same, the power, current and voltage levels will be within 2 or 3 db. or less than half an "S" point.

We will be mainly concerned with optimum operation of the various stages, from say the class A pentode or tetrode with an input signal of less than 2 volts across a high impedance tuned circuit, to the class B linear power amplifier. The ease and convenience of tuning, band changing, broad banding, maintenance of stability, reduction of intermodulation distortion, proper loading and reduction of radiation of unwanted signals are all very important, and it is hoped to provide some useful tips for the home designer and constructor.

in a box on its own for this reason alone.

Fig. 1 shows a typical block diagram of the recommended arrangement. It is only fair to mention that the class AB1 stage in the exciter may be lifted to the "hundreds of watts" level by adding more tubes of the t.v. line time-base type, e.g. 6DQ5, in parallel and increasing the plate voltage to the 1000v. region, however, this is not recommended as problems such as current sharing, neutralisation, high grid circuit capacitance, and, most important, the heating of v.f.o. components in the vicinity, to say nothing of the increased intermodulation distortion, may become apparent.

It is far better to drop back the level of output required from the exciter to reduce distortion and heating, and use this to drive a conservatively designed (and operated) linear amplifier, rather than to attempt to push the exciter too hard.

As a general rule it is necessary to operate the final linear amplifier with high plate voltage and lower the current requirements for the same power output. As an example it is quite safe

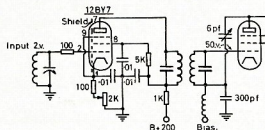


Fig. 2. Typical class "A" driver stage - Gain = 25. (approx)

It is usual to employ a 3-stage amplifier at the final frequency to provide the gain mentioned above with all of the desirable features. The first two stages are included within the s.s.b. exciter, the first being class A, and the second a class AB1 amplifier. The final linear stage may be completely separate, and it is desirable to keep it separate, complete with its own power supply and mains r.f. filtering, as the high voltages and currents in the plate circuit can cause havoc with low-powered audio stages, oscillators and mixers in an exciter. It has been known for power increases from the 50 to 100 watt level to the 500 watt level in the shack to cause all manner of troubles. It is a very good idea to keep the final linear

to operate 807's as linear amplifiers with 1000 to 1200 volts on their plates, i.e. twice the steady plate voltage applied to a plate modulated stage.

Valves known to have good linearity, and most transmitting valves come in this class, may be operated conservatively in neutralised, conventional amplifier circuits using tuned plate and grid circuits with appropriate supply voltages. Passive grid circuits, i.e. a low value grid resistor of 50 to 200 ohms, may be used if sufficient drive is available, and neutralisation omitted—this applies to tetrode or pentode stages. Where linearity is not a feature of the tubes to be used, such as the t.v. line-time-base tubes, then neutralisation

(Continued on Page 12)

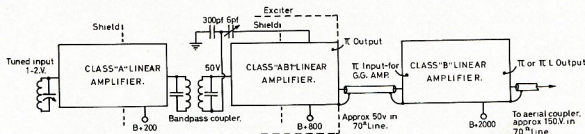


Fig. 1. Typical final frequency amplifier for SSB transmitter.

SIDE BAND

(Continued from Page 11)

tion and negative feedback are desirable if they are to be operated at high level.

The application of negative feedback to r.f. linear amplifiers is not for Amateur designers, except—and there is only one exception—in the case of the grounded grid amplifier, but there are some tricks and precautions to be observed, and these will be outlined later.

THE CLASS "A" AMPLIFIER

There is not a great deal of choice of suitable valves for this stage, but some tricks of the trade—not always realised by the trade—are worth consideration. Suitable tubes are the 6AG7, 12BY7, 6CL6, 6CH6 and 6BT7, but the various audio output tubes, e.g. 6V6, 6M5, 6L6, 6AQ5, are less suitable due to their high plate to grid capacitance, which makes stable operation difficult. Twin triodes have been used as cascode amplifiers, and I have used an EI80CC computer triode with a Gm of 6300 quite successfully.

Coming back to the first series of video-type tubes, examination of operating conditions shows that most manufacturers invariably put too many volts on the plate and screen and then have a heat problem. Since 50 volts of peak output is required to drive the next stage, then 150 to 200 volts on the plate and screen is more than adequate. The plate current may be run at 30 to 40 milliamps for less than 8 watts of plate dissipation, which allows the stage to

operate into a lower plate load, with better linearity, and much higher sensitivity. The advantages are obvious, and the result enables us to use a supply of about 180 volts for the whole of the low level section of the exciter, including the screen of the class AB1 output stage. The reduction in heating in the exciter is important and results in less v.f.o. drift.

Fig. 2 shows a typical 12BY7 driver stage, a tube type currently used as a video stage in Australian t.v. receivers and readily available at a reasonable price. This is a high slope tube and needs to be given all of the shielding and grid-stopper treatment for stable operation. With this it is a good performer.

[To be continued.]

LOW PASS FILTER DESIGNS

(Continued from Page 9)

FILTERS FOR OTHER FREQUENCIES

If one has the element values for a filter of cut-off frequency f_c and one wants to design a filter cutting off at f_s , simply multiply all element values by the ratio $(f_c \div f_s)$.

FILTERS FOR OTHER INPUT/OUTPUT IMPEDANCES

The filter values listed above are for input and output impedances of 50 ohms. Conversion to other values—say 75 ohms—is a matter of multiplying all inductances by $(75/50)$ and all capacitances by $(50/75)$.

USEFUL REFERENCES

- (1) "Network Analysis and Synthesis," L. Weinberg, McGraw-Hill, 1962, p. 601-670.
- (2) "Reference Data for Radio Engineers," "International Telephone and Telegraph Corporation, 4th edition, 1963, p. 187-229.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

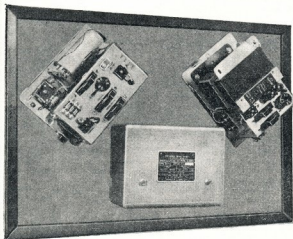
| Call No. | Cer. Cnt. ries | Call No. | Cer. Cnt. ries |
|--------------|----------------|----------|----------------|
| VK6MS | 24 330 | VK2JZ | 81 236 |
| VK3AHO | 51 322 | VK4HR | 12 248 |
| VK6RU | 2 312 | VK2ADE | 65 231 |
| VK5AB | 45 312 | VK3TL | 62 226 |
| VK6MK | 43 307 | VK2AAK | 58 214 |
| VK4FJ | 21 283 | VK6KW | 4 211 |
| New Members: | | | |
| VK2CM | 69 100 | VK3SM | 70 100 |

C.W.

| Call No. | Cer. Cnt. ries | Call No. | Cer. Cnt. ries |
|-------------|----------------|----------|----------------|
| VK3KB | 10 340 | VK2AGH | 71 284 |
| VK3CX | 36 312 | VK3ARQ | 79 281 |
| VK2QL | 5 308 | VK2EO | 2 279 |
| VK4FJ | 29 300 | VK6RU | 18 265 |
| VK2ADE | 81 298 | VK3ARX | 66 259 |
| VK3NC | 19 286 | VK3XB | 75 253 |
| Amendments: | | | |
| VK4HR | 8 252 | VK5RX | 23 235 |
| VK3TL | 78 229 | | |

OPEN

| Call No. | Cer. Cnt. ries | Call No. | Cer. Cnt. ries |
|------------|----------------|----------|----------------|
| VK2ADE | 28 322 | VK3NC | 71 287 |
| VK6RU | 6 320 | VK4HR | 7 281 |
| VK2AGH | 83 316 | VK2VN | 18 276 |
| VK6MK | 74 309 | VK3JA | 43 271 |
| VK4FJ | 32 308 | VK3TL | 85 250 |
| VK2ACX | 6 300 | VK2APK | 82 243 |
| Amendment: | | | |
| VK9TL | 99 107 | | |



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Right—Frequency Changer output 75V., 20VA., 25c/s.



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LM 52

VK-ZL-OCEANIA DX CONTEST 1965 RESULTS

The Federal Contest Committee of the W.I.A. takes pleasure in presenting the results of the 1965 VK-ZL Oceania Contest.

The winners of awards have been listed in the results using heavy type.

AUSTRALIA

| C.W.— | 80 | 40 | 20 | 15 | Total |
|--------------|-----|------|--------------|------|--------------|
| Call | | | | | |
| VK1VK | — | — | 2610 | — | 2610 |
| 2EO | 220 | 3810 | 11150 | — | 15180 |
| 2APK | 55 | 2260 | 4545 | 2440 | 9300 |
| 2VN | — | — | 5235 | 1215 | 6450 |
| 2QL | 650 | 1260 | 1865 | 1535 | 5310 |
| 2GW | — | — | 4375 | — | 4375 |
| 2QK | — | 1845 | 2225 | — | 4070 |
| 2PV | — | — | 3400 | — | 3400 |
| 2IC | — | — | 3130 | — | 3130 |
| 2RA | — | 275 | 970 | 375 | 1620 |

(VK2ASI 55 pts. (10 mx).)

| | | | | | |
|---------------|-----|------|------|------|-------------|
| VK3AXK | 165 | 2785 | 4845 | 585 | 8380 |
| 3MR | — | — | 8140 | — | 8140 |
| 3DQ | — | 1555 | 3275 | 1910 | 6740 |
| 3NC | — | — | 5525 | — | 5525 |
| 3YD | — | — | 4710 | — | 4710 |
| 3XB | 740 | 1265 | 1295 | 345 | 3645 |
| 3APN | — | 2920 | — | — | 2920 |
| 3RJ | — | — | 2745 | 2745 | — |
| 3ABA | — | — | 1815 | 1815 | — |
| 3ABR | — | — | 1215 | 1215 | — |
| 3ARV | — | — | 695 | — | 695 |
| 3QV | — | 665 | — | — | 665 |
| 3YU | — | — | 435 | — | 435 |
| 3KS | — | — | 110 | — | 110 |
| VK4LT | — | 690 | 5305 | 3755 | 9750 |
| 4VX | — | — | 6740 | 1290 | 8030 |
| 4SD | — | — | 5060 | — | 5060 |
| 4UC | — | — | 1735 | — | 1735 |
| 4XW | — | — | 1290 | — | 1290 |
| 4FO | — | — | 1285 | — | 1285 |
| 4PJ | — | — | — | — | — |

| | | | | | |
|--------------|------|------|------|------|-------------|
| VK5FH | — | — | 4645 | — | 4645 |
| 5MY | — | 1775 | 1780 | — | 3555 |
| 5KO | 1235 | — | — | — | 1235 |
| 5BS | — | 680 | 320 | 1000 | — |
| VK6SM | — | — | 4505 | 3450 | 7955 |
| VK7SM | — | 490 | 2910 | 1570 | 4970 |
| 7DK | — | 1325 | 1580 | — | 2905 |
| 7GV | — | — | 925 | — | 925 |
| 7RY | — | — | 380 | — | 380 |
| VK8DI | — | 290 | 2040 | — | 2330 |

| | | | | | |
|--------------------|---|---|------|------|-------------|
| (W7PGX op.) | — | — | — | — | — |
| 8DI | — | — | — | 1360 | 1360 |
| VK9GC | — | — | 3500 | 1200 | 4700 |
| 9CJ | — | — | 620 | — | 620 |

| PHONE— | 80 | 40 | 20 | 15 | Total |
|---------------|------|---------------|------|------|--------------|
| Call | | | | | |
| VK1VK | — | — | 2330 | — | 2330 |
| VK2APK | — | 970 | 5640 | 1450 | 8060 |
| 2KM | — | — | 3035 | — | 3035 |
| 2AGE | — | — | 2335 | 330 | 2665 |
| 2ASI | — | — | 2405 | — | 2405 |
| 2WD | — | — | 2275 | — | 2275 |
| 2AUS | — | — | 2190 | — | 2190 |
| 2VN | — | — | 1075 | — | 1075 |
| 2ACD | — | — | 950 | — | 950 |
| 2APQ | — | — | 55 | — | 55 |
| 2ACZ | — | — | — | — | — |
| 2MR | — | — | — | — | — |
| 2CM | — | — | — | — | — |
| VK3ATN | 1125 | 3000 | 5855 | 2375 | 15250 |
| VK3ATN | 165 | pts. (10 mx). | — | — | — |
| 3AKS | — | — | 3590 | — | 3590 |
| 3LWS | — | — | 1585 | — | 1585 |

| | | | | | |
|-------------|---|-----|------|-----|------|
| 3XB | — | 575 | 1150 | — | 1725 |
| 3SM | — | — | 1240 | — | 1240 |
| 3ABA | — | — | 800 | 800 | — |
| 3VZ | — | — | 740 | — | 740 |
| 3KS | — | — | 650 | — | 650 |
| 3QV | — | 520 | — | — | 520 |
| 3TL | — | — | — | — | — |

| | | | | | | |
|----------------|-----|---------------|------|------|------|-------------|
| VK4LT | 860 | pts. (10 mx). | 55 | 5680 | 1595 | 8190 |
| 4SF | — | — | 2950 | — | — | 2950 |
| 4DO | — | — | 2660 | — | — | 2660 |
| 4VX | — | — | 1480 | 705 | 2185 | — |
| VK5LC | — | — | 2015 | — | 2015 | — |
| SZZ/T | — | — | — | 1365 | 1365 | — |
| 5WO | — | — | — | 1125 | 110 | 1290 |
| (VK5WO) | 55 | pts. (10 mx). | — | — | — | — |
| 5FT | — | — | 935 | 135 | — | 1090 |
| VK6SM | — | — | 2760 | 700 | 3460 | — |
| 6EX | — | — | 2150 | — | 2150 | — |
| 6DR | — | — | 440 | 245 | 685 | — |
| VK7DK | — | 370 | 3835 | — | 4205 | — |
| VK8DI | — | — | 165 | 1175 | 1340 | — |
| VK9XI | — | — | 3865 | 1235 | 5100 | — |
| VK6GW | — | — | 2915 | — | 2915 | — |

| VK LISTENERS' SECTION | WIA-L2022 | — | 10190 |
|-----------------------|-------------|---|-------|
| BERS-195 (VK3) | 7085 | — | — |
| L3185 | — | — | 3040 |
| L3100 | — | — | 6035 |
| L3118 | — | — | 2990 |
| L3233 | — | — | 4870 |
| L3285 | — | — | 1235 |
| L4144 | — | — | 4280 |
| L4166 | — | — | 3305 |
| L5065 | — | — | 4074 |
| L6621 | — | — | 11040 |
| L6029 | — | — | 815 |

NEW ZEALAND

| C.W.— | 80 | 40 | 20 | 15 | Total |
|---------------|------|------|------|-------------|--------------|
| Call | | | | | |
| ZL1AJU | 55 | 1825 | 8585 | 6440 | 16995 |
| 1ARY | — | — | 5780 | — | 5780 |
| 1DV | — | — | 5755 | — | 5755 |
| 1AWT | — | — | 1680 | — | 1680 |
| 1HW | — | — | 4960 | 2690 | 7650 |
| 1OY | — | 2025 | 630 | — | 2655 |
| ZL2BAU | — | — | 5675 | — | 5675 |
| ZL3IS | — | — | 2745 | 2285 | 5030 |
| ZL4BO | 1315 | 4880 | 2620 | 1980 | 10795 |

| PHONE— | 80 | 40 | 20 | 15 | Total |
|--------------|-----|------|------|-------------|--------------|
| Call | | | | | |
| ZL1LK | 55 | 1435 | 8220 | 3075 | 12785 |
| ZL3GS | 190 | 325 | 5975 | — | 6490 |
| ZL4BO | 55 | 155 | 1588 | — | 1795 |

| ZL LISTENERS' SECTION | | | | |
|-----------------------|------|------|------|------|
| ZL149 | **** | **** | **** | 9075 |
| ZL190 | **** | **** | **** | 7950 |
| ZL1105 | **** | **** | **** | 2590 |
| Tony E. Magow | **** | **** | **** | 2205 |

OVERSEAS

| C.W.— | 80 | 40 | 20 | 15 | Total |
|---------------|----|------|--------|----|-------|
| Call | | | | | |
| Asia | | | | | |
| EP1BQ | — | 720 | pts. | — | 720 |
| JALAJ | — | 360 | — | — | 360 |
| JALIG | — | 12 | JAGCLO | — | 12 |
| JASAR | — | 810 | JATBMK | — | 810 |
| JASBN | — | 2 | JATFS | — | 2 |
| JASBR | — | 232 | JATYAS | — | 232 |
| JASCVW | — | 4144 | JAGAC | — | 4144 |
| JASD | — | 168 | JABPO | — | 168 |
| JASB | — | 1296 | Y8BJ | — | 1296 |
| JASPY | — | 132 | 9M2LO | — | 132 |
| Europe | | | | | |
| DJ5BV | — | 1224 | pts. | — | 1224 |
| DM2AND | — | 1360 | — | — | 1360 |
| DM2ATD | — | 696 | — | — | 696 |
| DM2EJ | — | 3 | — | — | 3 |
| DL1AA | — | 2180 | — | — | 2180 |
| G2DC | — | 374 | — | — | 374 |
| G3SSO | — | 1096 | — | — | 1096 |
| G3WP | — | — | — | — | — |
| G8RI | — | 1751 | pts. | — | 1751 |
| G6XN | — | 864 | — | — | 864 |
| HA3A | — | 368 | — | — | 368 |
| LA2Q | — | 24 | — | — | 24 |
| LATH | — | 133 | — | — | 133 |
| LASHIE | — | 1548 | — | — | 1548 |
| OE1RZ | — | 350 | — | — | 350 |
| OH1WK | — | 678 | — | — | 678 |
| OH1XK | — | — | — | — | — |
| OH1BCD | — | 13 | pts. | — | 13 |
| OH2BQ | — | 867 | — | — | 867 |
| OH2A | — | 388 | — | — | 388 |
| OH3UO | — | 468 | — | — | 468 |
| OH5UQ | — | 340 | — | — | 340 |
| OH5X | — | 1944 | — | — | 1944 |
| OH5VD | — | 36 | — | — | 36 |
| OH5VR | — | 64 | — | — | 64 |
| OH6UQ | — | 32 | — | — | 32 |
| OH7W | — | — | — | — | — |
| OK1SM | — | — | — | — | — |
| OK1ALZ | — | — | — | — | — |
| OK1US | — | 2 | pts. | — | 2 |
| OK1NK | — | 2 | — | — | 2 |
| OK1GO | — | 16 | — | — | 16 |
| OK1AF | — | 7 | — | — | 7 |
| OK1AFO | — | 145 | — | — | 145 |
| OK2KGP | — | — | — | — | — |
| OK2KQ | — | 160 | pts. | — | 160 |
| OK3UL | — | 378 | — | — | 378 |

| Europe | OK1OM | — | 396 | pts. |
|---------------|-------|---|-------|------|
| OK3CP | — | — | 108 | pts. |
| ON5AZ | — | — | 147 | pts. |
| OZ1 | — | — | 242 | pts. |
| OZ1PM | — | — | 260 | pts. |
| OZ1RR | — | — | 154 | pts. |
| PA6LO | — | — | 24 | pts. |
| PA6VB | — | — | 80 | pts. |
| PA6DC | — | — | 42 | pts. |
| PA6W | — | — | 320 | pts. |
| SM2CDW | — | — | Check | |
| SM2AGT | — | — | 810 | pts. |
| SM2BDS | — | — | 18 | pts. |
| SM3CW | — | — | 650 | pts. |
| SM4CLU | — | — | 32 | pts. |
| SM5AMP | — | — | 400 | pts. |
| SM5DKH | — | — | 42 | pts. |
| SM5CBC | — | — | Check | |
| SM5BY | — | — | 488 | pts. |
| SM5BNX | — | — | 162 | pts. |
| SM5CCE | — | — | 1396 | pts. |
| SM5BCK | — | — | 396 | pts. |
| SM7QY | — | — | 484 | pts. |
| SM7ANB | — | — | 542 | pts. |
| SP4AL | — | — | 130 | pts. |
| SP4AAK | — | — | 24 | pts. |
| SP6AAT | — | — | 16 | pts. |
| SP6ANY | — | — | 24 | pts. |
| SP6B | — | — | 8 | pts. |
| SP6SO | — | — | 8 | pts. |
| SP7HC | — | — | 126 | pts. |
| SP7BB | — | — | 120 | pts. |
| SP7BDH | — | — | 120 | pts. |
| TP3AB | — | — | 48 | pts. |
| YU1BCD | — | — | 198 | pts. |

| U.S.S.R. | | | | | |
|----------|-------|------|--------|-----|------|
| UAIKBE | 48 | pts. | UB5U | 95 | pts. |
| UAIKIA | 362 | — | UB5KA | 266 | — |
| UAINA | — | — | UB5KBU | 12 | — |
| UAIKJ | — | — | UB5KY | 12 | — |
| UAIKY | 42 | — | UB5KCC | 282 | — |
| UAKAW | 132 | — | UB5RS | 52 | — |
| UASND | 24 | — | UC4A | 33 | — |
| UASND | 132 | — | UC5W | 138 | — |
| UASKAO | 528 | — | UC3E | 2 | — |
| UASKBO | 910 | — | UD6B | 44 | — |
| UASKBU | 12 | — | UD6KAB | 12 | — |
| UAKKCC | 312 | — | UD6KAN | 64 | — |
| UAKEN | 394 | — | UD6EP | 24 | — |
| UAKEN | — | — | UD6C | 24 | — |
| UAENJ | 4 | — | UD6KA | 696 | — |
| UAEPG | 42 | — | UD6CH | 196 | — |
| UAEPG | 192 | — | UD6K | 48 | — |
| UAHLL | Check | — | UD6KA | 192 | — |
| UABWL | Check | — | UD6KBK | 38 | — |
| UABWS | 192 | pts. | UD6K | 48 | — |
| UAPKCF | 120 | — | UD6KBA | 192 | — |
| UAPKTE | 132 | — | UD6MB | 351 | — |
| UAPKTE | — | — | UD6C | 70 | — |
| UAQAG | 52 | — | UP2NK | 112 | — |
| UANGP | 140 | — | UT5BA | 385 | — |
| UANGP | 288 | — | UT6B | 238 | — |
| UAPKGR | 288 | — | UT6F | — | — |

MODIFYING PALEC VALVE AND CIRCUIT TESTER

(Continued from Page 2)

voltage to suit, then move slide switches to select valve pins, and insert valve in socket.

"Element Shorts": Set function switch (bottom l.h.s.) to "Element Shorts" and move each slide switch in turn to the "Test" position and return to "Common" position, with the exception of the two selected filament switches. Any continuous glow of the neon globe will indicate which element of the valve has an element short, or is internally connected.

When a valve is found with a short, don't test, but tip it out in the w.p.b.

Emission Test: Set function switch to "Merit Test" position. Set "Range Control" to "Palec" test chart number for the valve under test. Depress "Press for Merit" button and read the meter for valve condition, after having ascertained and selected the slide switch for the grid or diode connection under test.

After having completed valve testing, return all slide switches to the common position, as you may leave the filament selector switch on 12v. and come back to test a 1.4v. valve with rather disastrous result to the valve.

Make it a habit to set all selector switches to the correct positions before inserting the valve in the socket.

VK-ZL CONTEST RESULTS

(Continued from Page 13)

Europe

| | | | |
|--------|-----------|--------|----------|
| DJ6QT | 3512 pts. | OH3TV | 80 pts. |
| DJ7LD | 304 | OH3NC | Check |
| DM2ATD | 64 | OK1ADP | 729 pts. |
| DL1SV | 80 | OK1AHV | 72 |
| DL1AA | 2128 | OZ2SK | 576 |
| DL7KV | 90 | OZ4BH | 64 |
| G3UML | 1680 | OZ2SK | 1889 |
| G4XN | 1952 | PA0DEX | 125 |
| LA4LG | 40 | PA0HBO | 244 |
| LA7VE | 168 | SM2BHX | 856 |
| OD4RZ | 1141 | SM3RIZ | 632 |
| OE1RZ | 3440 | SM3AGD | 1686 |
| OH1PN | 8 | SM4CMG | 552 |
| OH2SB | 1386 | SM7MS | Check |
| OH3XA | 498 | SF7HX | 15 pts. |

U.S.S.R.

| | | | |
|--------|----------|--------|---------|
| UA3KBD | 287 pts. | UR3KAA | 810 pts |
| UH8BO | 2 | | |

North and South America

| | | | |
|--------|-----------|---------|-----------|
| HP1JC | 1689 pts. | K0ERV | 5700 pts. |
| OA4KY | 3326 | W1PVM/8 | 598 |
| EY2SO | 8 | W1TTH | Check |
| W4SALB | 35 | | |

Oceania

| | |
|------|-----------|
| KH8J | 5551 pts. |
|------|-----------|

OVERSEAS LISTENERS' SECTION

| | | | |
|----------|----------|--------------|----------|
| DE13064 | 243 pts. | JAI-3160 | 946 pts. |
| DE13431 | 48 | JAG-3235 | 60 |
| DE15440 | 200 | JAT-1535 | 272 |
| DEA5976 | 78 | JAS-1478 | 870 |
| DEA20185 | 378 | JAB-1030 | 682 |
| DEA27048 | 853 | Atsushi | |
| DL5-286 | 1444 | Oosumi | 1280 |
| GW796 | 328 | SM2-5706 | 936 |
| HE5FMO | 900 | UA9-2847/UA3 | 232 |
| II-11587 | 24 | WY61HI | 96 |
| JAI-1178 | 648 | UP3-S-523 | 398 |
| JAI-4955 | 95 | | |



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LIGHTNING

● The effects of lightning on electric reticulation systems are of great importance to all electric supply authorities. The Sydney County Council maintains a standing committee which keeps the lightning performance of its system under constant review. This committee also ensures that the Council incorporates the latest and most suitable lightning practices.

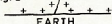
of the manner in which the electric field changes produced at the ground by lightning flashes varied with the distance from the storm. He concluded that, in a thundercloud, the upper part is positively charged and the lower part is negatively charged. This deduction has been confirmed by later work.

As the storm progresses it develops an increasing electric potential between its separate parts, neighbouring clouds or the earth. This potential is developed by the gradual accumulation of charge believed to be built up by the action of falling rain, snow, ice pellets, or some other unknown natural process.

Potential differences may reach values as high as 100,000,000 volts. The transient currents produced are in the range of from 3,000 to 200,000 amperes.



Fig. 2



LIGHTNING—THE ELECTRICAL DISCHARGE

It is believed that lightning strokes may be started with potentials of the order of 5,000,000 (or more) volts between cloud and earth.

Photographs of lightning strokes have been taken by a special moving camera based on a design by Sir Charles Boys. Use of this camera has disclosed that the lightning flash consists of a number of successive strokes which follow the same track. These strokes occur at intervals of 1/100th of a second, and the average number of strokes is three.

However, as many as 47 have been recorded in a single flash.

A lightning stroke is initiated by a streamer or pilot leader developing downwards to the earth from the negatively charged base of the cloud (Fig. 1). The current in the leader is not high, probably less than 100 amperes.

As the leader approaches the earth the gradient at the earth's surface becomes great enough to cause a short streamer to rise from the earth (Fig. 2).

Eventually contact is made and the high current flow associated with lightning occurs (Fig. 3).

This high current flow has a short duration peak and is followed by a low current long duration tail (Fig. 4). The low current long duration portion of a stroke is not disruptive, but will cause fires in flammable material. For that reason, low current lightning is known as "hot" lightning.

It is the so-called "cold" lightning, with its high current peak, that is so damaging to electrical apparatus and reticulation systems. Its destructive effects are seen in any high resistance medium. A lightning discharge flowing in a good conductor earth will not injure that conductor.

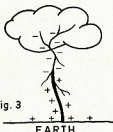


Fig. 3

Most lightning discharges occur within the cloud itself. The higher the cloud the easier it is for the discharge to pass between the upper (positive) and the lower (negative) sections of the cloud than it would be for a cloud to ground stroke.

Internal flashes do not usually appear as lightning strokes, but rather as general illumination in the cloud. This is due to the refraction of the light on the myriads of water droplets within the cloud.

There is no known method of either preventing or resisting the power of lightning strokes. For the time being, mankind has to put up with them. All the electrical engineer can do is to co-exist with lightning and to divert it from installations where it can do damage.

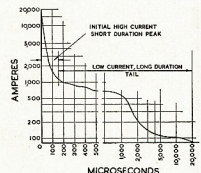


Fig. 4. Record of current in a direct stroke to the Cathedral of Learning, University of Pittsburgh, June 10, 1939.

THE maxim, beauty lies in the eyes of the beholder, is particularly apt when applied to lightning. Views range from beautiful, but awesome, to terrifying, dangerous and destructive.

It is the dangerous and destructive properties of lightning that concern the electrical engineer. The high voltages in a lightning stroke create problems that he must overcome if interruptions to supply are to be avoided.

Every day there are approximately forty-four thousand electrical storms throughout the world. It is estimated that the actual number of lightning strokes total about one hundred per second.

There is little chance of being killed by lightning unless one is foolhardy. During a thunderstorm it is hazardous to play golf, swim in open water, stand under an isolated tree, fly a kite, or generally remain in the open. Prudent people shelter during storms. The safest shelter is a metal enclosure such as a car or metal-framed building.

Despite almost two hundred years of scientific enquiry, the exact processes which give rise to a lightning flash are unknown. Many organisations are either conducting research or seeking the answers to the problems associated with lightning strokes to electrical apparatus.

The brevity of the average lightning flash, about 1/100,000th second, hampers studies in the field. Most research must be conducted in the laboratory by examining the behaviour of artificially created storms.

Benjamin Franklin was the first to identify lightning as an electrical discharge. During a thunderstorm in 1752, he was able to produce sparks from a key attached to the end of a kite string. Since then various theories, none of which meet with universal acceptance, have been advanced to account for the origin and generation of lightning.



Fig. 1



THUNDERCLOUDS—ELECTRICAL BUILD-UP AND STRUCTURE

A thunderstorm appears to be a form of electrostatic generator producing both positive and negative charges. The charged particles then become separated into groups of positive and negative charges in different parts of the cloud.

C. T. R. Wilson was the first man to deduce the charge distribution within a thundercloud. He did this by a study



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LIGHTNING PROTECTION

Protection from lightning is achieved by either one of two methods or by a combination of both.

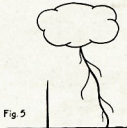
Shielding is the provision of a conductor which intercepts the lightning stroke and conducts the electrical discharge harmlessly (it is hoped) to earth.

The other method is by the use of lightning arresters. By providing a bypass around insulation, these allow current in a reticulation system to leave without causing either damage or an interruption to supply.

SHIELDING—USE OF LIGHTNING CONDUCTORS

Lightning conductors, which take many forms, shield a building, tree, mast or other object by attracting flashes which would otherwise strike either the object on which the conductor is placed or its immediate surroundings. Having attracted the stroke, the electrical discharge is passed to the earth.

When the path of a pilot leader approaches the earth remote from a conductor its course will not be influenced by that conductor. An upward streamer starts from the earth itself and the stroke is completed (Fig. 5).



Should the pilot leader be close to the conductor the potential gradient experienced at the end of the conductor produces a short upward streamer from the conductor. This upward streamer meets the pilot leader and the contact is made. The subsequent lightning discharge flows to earth via the conductor (Figs. 6 and 7).

Any lightning stroke headed towards the earth within a certain distance of a conductor will be attracted to that conductor. The area of attraction surrounding a conductor is known as the shielded area.

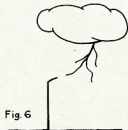
Good shielding is provided when out of every 1,000 lightning strokes only one strikes the shielded object, the other 999 being attracted by the conductor. This is known as an exposure of 0.1 per cent. The shielded area depends on the configuration of the conductor. In the special case of a rod or mast the shielded area is that covered by a cone whose apex is the top of the conductor with its surface forming an angle of 30 degrees to the vertical (Fig. 8).

The only way to ensure complete protection from all strokes is by practically surrounding an object with a conducting shield.

Multiple rods increase the shielded area between them to a greater extent than the sum of their protected areas.

This increase, although appreciable, may not be generally recognised.

A popular fancy is that lightning current has a tendency to jump from any sharp bend in the conductor. This type of flash-over occurs only when a nearby object offers an easier path to earth than does the conductor itself.



The prime requisite with all shielding devices is that they be well earthed. Failure to ensure first-class earthing can mean damaging side flashes as the discharge seeks an easier path to earth.

Possibly the earliest use of lightning rods or conductors to provide effective shielding was in the 19th century. Lightning conductors were fitted to the masts of the wooden ships used by the Royal Navy.

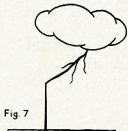
High voltage transmission lines are usually shielded by means of one or more wires suspended above the line conductors. These wires are earthed through each tower. When erecting transmission lines, engineers make a thorough check of the earthing of each tower. If found to be inadequate, long wires known as counterpoises are bonded to the tower and buried in the ground to form a radial pattern around it.

Shielding will not prevent the line conductors from being subjected to transient voltages during a lightning stroke. However, it will usually keep the transient voltage below the flash over voltage of the insulators.

LIGHTNING ARRESTERS

Protection of equipment is usually carried out by means of surge diverters, more commonly known as lightning arresters. These devices provide an easy path to earth for the lightning current, yet prevent the normal supply current from following. Once the lightning current has been passed to earth the arrester must rapidly re-establish itself as an insulator to prevent power current following.

The name "lightning arrester" is not really correct. The device is actually a lightning diverter and a power current arrester.



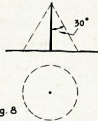
(Spark gaps are sometimes used instead of arresters. They are less expensive and if the gap spacing is correctly chosen they will prevent damage to costly apparatus, but do not avoid interruptions to supply.)

Lightning arresters are generally of two basic types: expulsion arresters and valve arresters.

The expulsion arrester consists of a tube with an electrode at each end. The tube is made of a material that, under the heat of an arc, will create a gas (the tube may even be filled with gas-producing material).

In operation, the lightning current causes the electrode gap to break down. An arc is formed and this is maintained by the power supply voltage. The heating liberates gas at a rapid rate and the arc is blown out of the tube by the gas, lengthening it and interrupting the power follow-on current.

As the explosive nature of the discharge is related to the fault current there is a maximum current which an expulsion arrester can handle. Such arresters are usually employed on systems with moderate fault duty.



The rapid arc extinction of the expulsion arrester can give rise to transient overvoltages which are damaging to certain types of equipment.

The so-called valve arrester avoids this trouble and is consequently more often used.

It consists of a number of arc gaps in series with blocks of resistance material having an inverse resistance characteristic, i.e. the resistance decreases as the voltage increases.

At high lightning voltages the blocks have negligible resistance to the passage of current. At the lower power frequency voltage their resistance has increased and the current is reduced to the point where it can be interrupted by the gap.

The process described is a more gradual way of preventing follow-on power current than that employed by expulsion arresters. Both types of arresters divert the lightning current to earth yet avoid power interruptions.

★

CONTEST CALENDAR

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- 7th/8th May: U.S.S.R. DX Contest (c.w. only on 3.5 through 28 Mcs.).
- 4th/5th June: CHC/FHC/HTH QSO Party.
- 9th/10th July: R.S.G.B. 1.8 Mcs. "Summer" Contest.
- 24th/25th Sept.: R.S.G.B. 21/28 Mcs. Phone Contest.

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| 432 " : | VK3ZDM | to | VK1LZ 8/1/66 312 " |
| 576 " : | VK3AKE | to | VK3ANW 11/12/49 80.7 " |
| 1296 " : | VK3OB/3 | to | VK3AUX/3 23/1/66 3.0 " |
| 2592 " : | VK3XA | to | VK3ANW 18/2/50 9.0 " |
| 3888 " : | VK3ZGT/3ZGK/3 | to | VK3ZDQ/3 14/12/65 65.8 " |
| QUEENSLAND: | | | |
| 50 Mcs. : | VK4ZAZ | to | K6ERG 16/3/58 5305 miles |
| 144 " : | VK4ZAX | to | VK7ZAO 27/12/61 1197 " |
| No other claims | | | |
| SOUTH AUSTRALIA: | | | |
| 50 Mcs. : | VK3KL | to | WTACS/KH6 26/8/47 5361 miles |
| 144 " : | VK5ZJH | to | VK8ZCN 8/1/65 1330 " |
| 432 " : | VK5AW | to | VK3AEE 13/11/64 228.5 " |
| 576 " : | VK5ZTM/SZJH/5 | to | VK3ZTS/SZJH/5 4/1/65 165.5 " |
| 1215 " : | VK5LA/5 | to | VK3ZCR/5 4/1/62 1.0 " |
| WESTERN AUSTRALIA: | | | |
| 50 Mcs. : | VK6BE | to | JA8BP 30/10/58 5490 miles |
| 144 " : | VK6ZCN | to | VK5ZJH 8/1/65 1330 " |
| 432 " : | VK6ZDS | to | VK6LK/6 30/5/64 35 " |
| 576 " : | VK6ZDS | to | VK6LK/6 15/12/63 101.2 " |
| TASMANIA: | | | |
| 50 Mcs. : | VK7LZ | to | JAH1L 3/12/59 5426 miles |
| 144 " : | VK7ZAO | to | VK4ZAX 27/12/61 1197 " |
| 432 " : | VK7LZ | to | VK3ZDM 8/1/66 312 " |

No other claims.
N.B.—Australian Records in bold type.

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SWL
Sub-Editor: D. GRANTLEY, WIA-L2022
Alexander Ave., Hazelbrook, N.S.W.

From time to time the question of low percentage of returns to listeners' reports is discussed. The reason for this is that the results are marred are the reasons given. One person who qualified to speak on this problem is Frank W. Squire, a well known s.w.l. who has been an Amateur of 27 years' standing, much of that time being spent in conducting the VK3 QSL Bureau. He approached Frank on this matter, and here is his answer: "I quote: 'The lot of the s.w.l. is not a happy one. I am not a very happy one from the QSL point of view, and my experience is as s.w.l. when I won the contest in 1934, as an Amateur of 27 years' standing, and running a busy VK3 QSL bureau. A lot of people have been in the habit of coming to the door of the s.w.l. himself. There is very little chance of anybody including someone in their list of correspondents who is not an Amateur fraternity, because they don't believe in QSL's. Whilst Amateurs are promised that they will be able to understand what is meant and never send a QSL. In the DX community, where the QSL is in vogue, I don't think all the QSLs for Amateurs who do not believe in them are confined to the rubbish bin. I have seen many QSLs which will be thrown away from s.w.l.'s. I have heard Amateurs say to me, 'I have heard s.w.l.s. say that they are not interested in them. Even the DXers do not care for them. My mind goes back many years to the time when Amateurs used to use the return stamps for their own purpose.

Referring to my earlier statement that w.s.l.'s are to a large extent to blame, give these reasons. Firstly, the cards often list the call letters of the transmitting station. Secondly, the pirate could be absolutely sure that you have the call sign correct. I received a report from a station in G.M.F. on 10 metres. I thought the pirate could be at work. Secondly, a report is often sent from a QSL on the wall of an amateur's shack. The time taken to receive a QSL is not too long, and the time taken to write a sufficient time has elapsed for the Amateur's QSL to be received by the DX station. S.w.l.'s originate a report. Thirdly, the report 'heard' by calling CQ' often comes to light. This is because many of the QSLs are sent to score a card from some unsuspecting Amateur by picking calls out of the call book. Many of these QSLs are sent to the active Amateurs. Fourthly, the QSL reaches the transmitting station working a station in the s.w.l.'s home town. This report is sent to the Amateur who is working the station. The Amateur is more interested in knowing if he is working VK to G, to get a report from 250 miles away. I have received a number of cards in their cards in the week envelope direct by mail nine months after I had confirmed the same QSO for you s.w.l.'s living in the

Finally, Frank goes on to add that replies from the DX stations are sent to the various amateur radio bureaus of the world, and if the owner of the station is a member of the International Amateur Radio Union, the DX station will not have any special arrangements to collect cards, then delivery is impossible. Some of the calls used by VK9WJ are such that it is possible to trace the owner of the station. So the only way to get a reply is to make a few reasonable why listeners don't always get a reply is the replies they feel they should. Thanks for your comments thus far, and yours and further comments on QSL will be included in the next M.C.G. newsletter. Information on certain overseas postal charges.

PERSONAL

Mac L2974 just back from VK7 has managed to make new points in the Ross Hull on 6 metres but is suffering from t.v.i. in reverse. Bryson has been out on 10 metres for 10 minutes and reports via the tape recorder. Listening on 21 metres he logged KZ25, YSL1, SM6, ODS, CR8, RF4 and RF6 whilst 15 minutes later he logged RF4 and RF6. Geoff Taylor, also of VK8, heard OZ7, PZ1, PA0, VR2, EL3 and many others of 20, whilst of 15 ZC4, JA, DL, VU, ZL and others appeared. Geoff Taylor reports that 5073s just back from a VK2 holiday on 10 metres at 20 a.m. of W Z88, HB8 VU2, Z4JW, 9VIGZ, CT85G with cards received from VK2, VK1, W, VK3, BG6, BG7, BG8, BG9, BG10, BG11, BG12, BG13, BG14, BG15, BG16, BG17, BG18, BG19, BG20, BG21, BG22, BG23, BG24, BG25, BG26, BG27, BG28, BG29, BG30, BG31, BG32, BG33, BG34, BG35, BG36, BG37, BG38, BG39, BG40, BG41, BG42, BG43, BG44, BG45, BG46, BG47, BG48, BG49, BG50, BG51, BG52, BG53, BG54, BG55, BG56, BG57, BG58, BG59, BG60, BG61, BG62, BG63, BG64, BG65, BG66, BG67, BG68, BG69, BG70, BG71, BG72, BG73, BG74, BG75, BG76, BG77, BG78, BG79, BG80, BG81, BG82, BG83, BG84, BG85, BG86, BG87, BG88, BG89, BG90, BG91, BG92, BG93, BG94, BG95, BG96, BG97, BG98, BG99, BG100, BG101, BG102, BG103, BG104, BG105, BG106, BG107, BG108, BG109, BG110, BG111, BG112, BG113, BG114, BG115, BG116, BG117, BG118, BG119, BG120, BG121, BG122, BG123, BG124, BG125, BG126, BG127, BG128, BG129, BG130, BG131, BG132, BG133, BG134, BG135, BG136, BG137, BG138, 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bands and did very well in the Ross Hull on 2 metres. During the past year Bob sent out 505 cards for a 12% return on h.f. and 68% on v.h.f. Cards to hand KCEAG, TFEA, CTIPK, VEHR, XEIV, YFSS, FRZD, and ZB. The latter three are all on 1300 and are being mainly on 20 m. heard JTJKA 0721, CRSAI, ON4DY, XWBA, FO8AA, F8YY, LAIH, 4U1TU, FUBAG, HSJJO to name but a few. At this QTH, high in the Blue Mountains N.S.W., 1 Mcs has been heard from all over the globe from about p.m. local time, whilst there are still regular openings to Europe of 15 metres at the same

time Peter Drew L602I has been very quiet and the only stations of note to report are CTQSO, TUZBD, SVIME, all on 20 metres s.s.b. Ernie Luft L589D heard nearly everything there was to hear. MNVTO, WJYB, DL CRA, UA KZZS, ODS, GBSRS being just a few. Ernle is now Secretary to the Elizabeth A.R.C. in VK2. I have received since 1964, but it is far too long however, a glance through it is sufficient to prove that if the listener goes the right way he can find some interesting material.

Warwick Smith of VK3 has just returned from VK2, where I had the pleasure of meeting him for a week-end during February. A number of his friends were also present and on the heels of the top three members of the DX ladder. From Eric L304E we have a list of results which shows that about one-third will prove that a higher percentage of QSL's will be received where greater care is taken in preparing reports. Eric sent out 1316 for a total of 709 replies or over 50% return rate in 35 zones. During the year he heard 149 countries in 38 zones plus 33 ships & 13 mobiles. Total log entries in 40 years' listening are:

29A, 190 20A, 20
29G, 193 Listening this year so far has been calls as YA, UC, U8, UA, LZ, W, OK, DL, A, YU, UL, ON, ME, OZ, G and JAMM.
30A, 200 On average he receives 10-15 VSPMs, UD6AV, UBHCL, GPWUF, F and YO were some of the more interesting logs/packets.

VKUKX, HSIISW, VSFOF, FRIZD, SMANV, 9MEKS, ODSEK and many others provided our No 1 S.w.l., with an excellent beginning for the new year.

I am sure you would agree that it is wonderful why more attention is not paid to the 80 metre band by the s.w.l.'s who can copy c.w. There is often a host of DX on it in the early hours of the morning - usually before dawn - for a second ever. Ernie has just received QSL's from VSSMH, HBFGM, 9NEAP, KPARK, ZLGBR. To bring your score up to 87 confirmations! Ask Alan E.A.N. for details of the Elizabethan award to him. Keep it up Bert

BAND SUMMARY

From the preceding notes it is evident that all bands are active in some shape or form. Ten seems to open very briefly on very irregular times, whilst 15 provides good DX in all States from mid-morning to later afternoon. 20 metres as usual provides the bulk of the a.s.b. DX and is open to all States are almost 24 hours a day. The 3.5 Mc. band the conditions are almost hopeless due to commercials, but for the c.w. men both this and 3.5 Mc. provide plenty of good countries.

DX NEWS

Here are some more QSL managers to make the cards flow a little faster. For HYVNC (K3Y) and K3Y, contact the 963 (K3Y) FLIMC (WTWLL), TZJATB (ZS2ANIK), QVBQBA (GK8K), ZDTRH (G3AO). ZDBBE requests all QSL's via the ZS Bureau. VPIJKR (VEACD), VPIJKR (VEACD), VPIJKR (VEACD), VPIJKR (VEACD) are in the hands of Jack. W2CTN 9H1R, 5M6MB, VS8PM, VREKX, VPIJKR, OHAMG, VPIJKR, OHAMG, VPIJKR, OHAMG, VPIJKR, OHAMG call sign of the Amateur Radio Club BPO 64, Sharjah, Trucial, Oman, FK8AC (Box 104). FK8BG (Box 97) and FK8AB (Box 657) are in the hands of the same person and are very helpful in securing a card from that country. JTK1AA still pounds into this QTH on 20 meters. Contact him via the ZS Bureau. Dr. Henry Stockwell, Box 72, Mona, Jamaica, whose call is G7DBE will be pleased to hear from you. Contact him via the ZS Bureau. One signal down to VK1. Z1ACH is Campbell Is., whilst VK9P D1 and GN are T.N.G. ZSSE was heard here recently, his QTH being Box 118, Steamer Pt., Aden. "Monitor."

GROUP NOTES

I regret to say once again chaps that no official notes have arrived here from any division, so please don't blame me for their deletion. Any members or groups desirous of reporting in by tape, you are welcome provided you use twin track only, at either of the three standard speeds. Delay on reply to those tapes should be about a week from date of receipt.

Machines in use here are Pye UGT, and A.W.A. Robuk. At present I am in regular contact by this mode with Doug Head, Alan Raftery and Bryan Prosser of VK, and I.S.W.L. member Bernard Hughes. This is a most interesting phase of the hobby, and one which could well be used and encouraged by members who are anxious to see the s.w.l. movement flourish. To save possible damage to tapes which could be left in the sun for long periods of the day, I would advise any users to send them to the box number quoted earlier.

QTH'S WANTED

Many queries come to hand here for the QSL addresses of overseas stations. Many I am able to answer by letter from information on hand, however, I am often required to seek outside assistance from other s.w.l.'s who have a keen DX interest. At the suggestion of Chas. VK4UC, who has offered to assist, we will try and make this a regular feature. So chaps if you have any queries or answers, drop a line to me at the following address: D. Grantley Box 222, Penrith, N.S.W. All regular mail, however, to the normal address please.

Bob Mutton L7031 wants QTH or manager for HS1IM, VS9AHE, also VK9TL heard after Ken 3TL returned to VK3.

Bob Halligan L3229 wants KG6IG, VS9OC and ZB2AL.

DX LADDER

Next appearance in "A.R." will be in the May issue and I would appreciate any notes by April 25. Only changes of note take Warwick Smith to 126 confirmed, and my own overall score to 295 heard. That's all for this month chaps. 73 de Don L2022.

☆

U.S.S.R. DX CONTEST

Aim: Each Amateur to contact as many other Amateurs as follows:

Date: 2100 G.M.T., May 7, to 2100 G.M.T., May 8, 1966.

Logs: A minimum of 12 hours' operation is necessary for a log to be valid. All contest contacts must be shown.

Stations other than those in U.S.S.R. send a serial number 589001, 589002, etc. U.S.S.R. stations send a number consisting of RST plus his oblast.

Logs must be addressed to R.S.F., Box 58, Moscow, U.S.S.R., and postmarked not later than 1st June, 1966.

Activit

- (1) C.W. only on 3, 5, 7, 14, 21 and 28 Mcs.
- (2) One contact per band.
- (3) Contacts between stations of the same city are not permitted.
- (4) Participants to call "CQH."

The total score is determined by taking the sum of all contacts on one band and multiplying this by the number of countries worked on that band. The all band score is determined by adding the scores of individual bands.

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 (Phone: 41-3535, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.

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- ★ MULTI-PIN PLUGS & SOCKETS
- ★ MULTI-CORE CABLES
- ★ CO-AXIAL CABLES
- ★ CO-AXIAL PLUGS & SOCKETS
- ★ H.V. PROBES
- ★ AMPLIFIERS
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- ★ VIBRATORS
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- ★ TRANSISTOR POWER SUPPLIES
- ★ POWER CABLES
- ★ MICROPHONE CABLES
- ★ 15 VOLT/300 WATT PETROL CHARGING PLANTS
- ★ ELECTRONIC EQUIPMENT RACKS
- ★ ELECTRIC MOTORS—230V. $\frac{1}{4}$ H.P.
- ★ P.M.G. 88D & 89D JUNCTION BOXES
- ★ No. 122 AERIAL PACKS
- ★ ALUMINIUM TUBING— $\frac{1}{4}$ "
- ★ VALVE SOCKETS—ALL TYPES
- ★ C.R.O. TUBES
- ★ REFLEX SPEAKER HORNS
- ★ 15 WATT DRIVER UNITS
- ★ 12 VOLT 15 WATT TRANSISTORISED AMPLIFIERS
- ★ TEST EQUIPMENT
- ★ ASSORTED ELECTRONIC CHASSIS

STOCKS MUST BE CLEARED. NO REASONABLE OFFER REFUSED



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Sub-Editor: ALAN SHAWSMITH, VK4SS
35 Whymot St., West End, Brisbane, Qld.

Reports this month indicate that "Ole Man Iones" may be showing a trace of "liver." Generally, DX worked seems a bit thin, but this short phase is already over the way out so keep an ear at the receiver, all good prefixes are due to show up.

NOTES AND NEWS

Jan Mayen: LA5CI/P around 2100z on 14.435, QSL LAING.

Syria, Rasheed: YK1AA on every day s.s.b. 1400-1500z, 14.215-14.232 Kcs.

Albania, ZA Land: Reports of activity from ZA1AAA are to hand, but probably phoney—also rumours that a ZA operation will occur shortly. No more information.

Bajo Neuve: HK0AI expected to be on from here soon—possibly April.

Rio De Oro: EA9IC is to be activated from April 2-10 with EA2CA on s.s.b. and EA4CR on c.w.

Laccadive Islands: This spot should be heard from shortly, with VU2NR and others operating. No other information available.

Juan De Nova, etc.: This one by Jose CR7GF set for April 1.

France Joseph Land: Victor UA1KD very active daily from 14.121 Kcs s.s.b., usually working 14.205-220. No operation Mondays and Fridays. 0630 and 2100z. QSL's via Ernst Krenkel, Chaglin, L-1, S.S.R.

Gabon, Republique: TR8AD Max on 20 m.x.s.s.b. around 2000z. 14.231 Kcs. QSL to Box 1025, Libreville, Gabon, Republique.

Bill Fiedler: Bill Porter operating as KIYPE/XV5 heard on 14.250, 310, s.s.b., as well as 20 and 15 m.x.s.s.b. QSL via WAUWC.

Angela: CR6RC Ernest on daily from 2000z, 14.220-250 Kcs. QSL via K4ISV.

Ivory Coast: TUBED (ex-TX2HR), Gilbert is active s.s.b. 14.250-255 Kcs. QSL via Ivory Coast.

Also Pierre TUBEA on 14.203 at 2200z.

Monsieur Jean 3A2XX, on 14.043 at 1430z. QSL to Bill XW8AX, 14.242 at 0030z. QSL via WKTKE. Also XW8BD on 7 and 14 Mcs.

Small Rep.: Smitty (ex-TU2AR) 601AU, 14.110 s.s.b. QSL via W4XW. He is due back in FL8 land soon.

Sierra Leone: 9L1LT, on 21.047 at 1730z, and 14.180 on 14 Mcs. c.w. at 2000z. QSL for BC via W2CTN.

Republic of Congo: TNEBK at 2050z on 21.264 m.n. fone.

Cuba Y Melilla: EA9AY reported on 14.037, at 1830z. Call Box QTH is O.K.

Swaziland: ZSD5 Dave on 14.107, working 10 up, at 1900z. QSL's via W8CWX.

Curam Island: ZS1RV said to be operating from this island. Possibility of this qualifying as separate D.C.C. country, as it is supposedly under separate jurisdiction.

Antarctica: ZL5AA (Ian, formerly ZL4JF) was active s.s.b. 14.250-255 Kcs. QSL via WKTKE.

Senegal Republique: Among active stations are 6W5GD Ahmed, on 14.006 at 1330z. L.F. 6W8AG and 6W9W on c.w.

QSL Information: WB1PM advises W2WMM that he presently handles the QSL chores for the following: T2AAV, T2SVP, ZS2CF, ZS605, ZS8E and 6Y5AM. Cliff T23AA, who is state-side for a vacation, says that anyone needing a card may send to W6GCM before 10.00z, 24 when he leaves for 7Z land again. 9M4LP cards run via W2CTN. W6PMM/DUI QTH is B. H. Brunstrom, New Britain Mission, Box 2570, Marila, Republic of Philippines (LIDXA).

Marion Island: Harold ZS1CZ, QSL manager for ZS2M1 says he has not received any logs since September Int. So those waiting for cards will have to be patient. Activity is expected to cease from here in about 3 months.

East HAT/724 cards are not being accepted for D.C.C. credit. Unauthorised operation.

Much of the above supplied by the courtesy of (LIDXA).

Saint Martin: FSTRJ worked 14.110, 6700z. (VK4UC).

Mongolia: J7IKAA, J7IAD in Zone 23, 14.050 Kcs. 1000z. also 7 c.w. (VK4UC).

Fermosa: BV1US, Howard reports a big backlog of QSL's to be sent out. So please be patient. (VK4UC).

East Caroline Is.: KC6BW, 14.110, s.s.b. on Ponape. QSL WTDK. (Chas. L4018).

Kinshasa: Reports to Kinshasa RV1 is the new prefix for this country. Operative from 1/2/66.

China: BY3AAB has been active on c.w., 14.500 Kcs. at 0830z, also on c.w. 14.050 Kcs. at 0840z. Both worked on GZDC.

St. Vincent Island: VP8SJ Harold has been active on c.w. from here, 14.050 Kcs., 1330z. QSL as per call book.

Koror: HJ2R has stated he is returning to the States April 30. QSL WGLZ.

Adelaide Island: VP8IP is active from here, c.w. 14.020 or 14.04 Kcs.

South Georgia: VP8IO Jack Biggs is now back here for a two-year stay.

South Orkneys: LU12Z Daniel is active on s.s.b. 14.270-280 Kcs.

South Shetlands: LU12Z Daniel on c.w. 14.48 Kcs. Paul on s.s.b. 14.350 Kcs.

The above by courtesy of Jim G3UGT "Air Waves".

Reckall Is.: Latest on this is that activity is expected by next June or possibly earlier if it can be arranged. More information if it comes to hand.

Wallis Is.: FW8RC reported active from VK and overseas source, 14.125 Kcs. QSL FK8AU.

Aden: VS9AAE, 21.375 around 1700z. QTH O.K. in call book.

Iraq: EP2RV will be active late March and into April. QSL G5RV.

Surinam: PZ1BW still QRV 14.230 at 2000z. QSL via VK2EJ.

Breches: GKXK will be QSL manager for this stint. Harvey VQ9HB will shortly leave for this rare spot. After April 15.

Stop Press from LIDXA.

Ethiopia: ET3AC Blake on 14.245 at 2100z. QSL via KU2ZA.

Kenya: N4J New York call is KS4SA. WA4PYP is handling the QSL's.

Albania: Latest call is ZA2BA, 14.065, 1800z, with QSL via Bureau (7). Sounds phoney.

Ivory Coast: TUBA Pierre, 14.115 at 0000z. Lows: XW8AZ, 14.115. QSL WKTKE. On for several months. XW8BD also active 7 and 14 c.w.s.s.b.

Alabara: Jose CR7GF now has his licence for this one, and should be there beginning April. Glorioso and Comoro will probably be next, then Juan de Nova.

Central African Republic: TL8SW Sid on 14.247, working 5 up and/or down.

Stop Press from Jim G3UGT "Air Waves".

Peru: OAP/P is active s.s.b. on 3700 Kcs. around 0710.

Bonin Is.: KG5IG is active on s.s.b. on 14.260 Kcs. around 0800z. QSL W3KTY.

Malpelo Is.: HK3RG and others are planning to be active this time.

Maldiva Is.: Stan VS8MP still on 80, 40, 20 c.w.s.s.b., also Club Station VS8MB on 14.250. Stan leaves for home, U.K., in June. Best freq. and times for QSO are 3.60, 1300, 7007, 1300z, 14.005 or elsewhere after 1200z.

ACTIVITIES

Ken VK3TL lists these right up to the minute QSO's: CN8MR, DU0DM, FW8Z, FW8RC, KISD/s.cro. KS4CA (Swan Is.), VP2ME, UA1KID (Frans Joseph Land), VPTNA (Scott's Base), 7Z3AB, 9V1GZ.

Best QSL's received:

VP3CP, SL1HX, T14JP, H1RSD, H1RXT, KX65Z, EB0N, TH0RC, LX1DE, H1XAL, XW18W, IS9WV, W5WV, ZL1, BY4CH, J91W, FR1ZD, ET3FW, 5R8AJ, OY3B, FG7XL, HVICN.

Dud VK4MY says conditions on the Gold Coast are not good, so getting a tan in the garden but did manage these on 14 c.w.: OD5LX, VQ8BL, OY7RMI, VS9AHJ, KR60F, UP2KPN, ZL14A, T2AAV, VS9Q, UDBDD, FW8Z, 9V1NM, RV1Z, VUZUW, etc.

Pete VK4PJ basking in the luxury of a Galaxy lodge, says: W8BEM, DL4EG, UA05K, YA1AG, G5ASN, GZ1AN, J91WV, 140ZE, G2HSE, AU1FL, DC3HU, VF2AA, VE3DFM, VE2NK, VE3GO, VE3AU, VE3AU, DU0DM, 9G1DU, VP8AB, VS8BO.

Ken VK4UK reports working the following on 14 c.w.: KC3AA, W8BEM, 52ADW, JA6AA, FR1Z, FR1W, DM2AND, SL8BO, UA6BL, 9M8BM, LU2DAW, PT2DO, S30M. QSL's to hand from FZ1Z, DC3HU, OZ1HL, 140ZE, G2HSE, PE2EVO, VQ8J, 9M6DH, HS1C, G31UX, G31YT.

Most of the above QSO's were worked between 0700z and 1400z.

QTH's

KW3BD—Box 402, Ventiane, Laos.

VP2ME—Via Hammarlund.

ZL5A—ZL2GX, Victoria.

VF7NA—P.O. Box 5221, Nassau.

VS4AA—WAUWC.

KT4CA—WA5OPE.

DU0DM—Box 4083, Manila.

FK8AU—Raoul Thomas, P.O. Box 637, Noumea.

FW8RC—Via FK8AU.

SUMMARY

Ham YL Pen Friends: Rolf Suleng, of P.O. Box 162, Bergen, Norway, who is a Class Radio Instructor, teaching code to operators in the Merchant Navy, writes and says that 40 per cent. of his class pupils are YL's and quite a few expect to visit VK Inter this year or early next. Gratitude to the column's contributors and many are anxious for s.w.l. and Ham friends.

Here's a chance for the young bloods here in Australia, to promote VK, A.L. and probably N.Y. gradates to the column's contributors: LIDXA, Fla. DX'er. VK3KB, VK4UC, VK4MY, VK4PJ, VK3TL, L4018 and Jim, G3UGT of "Air Waves".

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NEW CALL SIGNS

DECEMBER, 1965

VK1MT—V. P. Koenig, 16 Norman Street, Deakin.

VK1ZSW—A. S. Waigst, Station: Flat 3, Northside Heights, enr. Know and Irvine Streets, Watson; Postal: P.O. Box 318, M-muka.

VK2EJ—M. McIntosh, "Warwick," Warwick Road, Cowan.

VK3WL—L. R. Edge, Flat 18, 50/60 Curtis Road.

VK2ADR—J. D. Hunt, 29a Cabramatta Hotel, Cabramatta.

VK2ARY—H. J. Randall, 9 Dibbs Street, Coffs Harbour.

VK2BAO—B. A. Hancock, 56 Adderley Street, North Adelaide.

VK2HBB—The Student Radio Club—Station: Cnr. Leonard and Stanley Streets, Bankstown; Postal: P.O. Box 231, Bankstown.

VK2BK0—M. G. McIntosh, 10 Nielson Street, Lismore.

VK2BR0—R. F. K. Evans, 5 Catherine Street, Gwynneville, via Wollongong.

VK2ZAV—G. J. Anderson, 30 Hume Road, Cronulla.

VK2ZCM—J. W. Avey, 5/50 Street, Ashfield.

VK2ZJX—S. Hodgkinson, C/o 2GZ Radio Station, 31 Sale Street, Orange.

VK2ZGI—R. J. Richards, 21 Fitzsimmons Avenue, Lonsdale Cove.

VK2ZLE—M. E. Latham, 33 Margaret Street, Fennell's Bay.

VK2ZMF—J. Foran, 4a Gerrish Street, Gladsville.

VK2ZRA—R. J. Anderson, 37 McLachlan Avenue, Long Jetty.

VK2ZZF—J. J. Waller, R.M.B. 141, Geringong.

VK3AFV—P. V. Lancaster, 61 Aymer Street, North Sydney.

VK3AQG—J. J. Jacquemin, 48 Sargood Street, Altona.

VK3ZTA—J. Scheech, "Parkside," Hamilton.

VK3ZTB—T. R. Bird, 9 Hosken Street, North Balwyn.

VK3ZTC—A. N. Richardson, 38 Aberdeen Road, South Blackburn.

VK3ZTE—G. L. Symons, 117 Fawcner Street, Essendon.

VK3ZU—J. R. Bird, 187 Bowen Road, Townsville.

VK4TH—F. W. Chapman, 17 Shafesbury Street, Ebbw Vale.

VK4TJ—W. J. Melville, 51 Beut Street, Toowoong.

VK4ZNT—N. W. Stutter, 20 Stevens Street, Yeronga.

VK4ZPD—D. J. Parker, Station: 54 Galatea Street, Charleville; Postal: St. Leo's College, St. Leo's.

VK5GI—G. K. Jenkins, 2 Crozier Terrace, Oklands Park.

VK5HF—J. Edwards, 11 Brentnall Avenue, Blair Athol.

VK5JE—D. J. Churcher, 41 Wood Street, Kew, Victoria.

VK5L—E. E. Sidler, 23 White Street, Henley Beach.

VK5XP—A. J. Parks, 5 Haldane Street, Elizabeth Downs.

VK5MW—B. M. Wallis, 19 Blueberry Road, Paradise Gardens.

VK6ZAF—J. D. Hall, 109 Forrest Street, Cottesloe.

VK6ZBO—E. J. Barbara, 33 Upton Street, East Melbourne.

VK6ZCL—G. Meers, 60 Frederick Road, Hamilton Hill.

VK6ZP—P. J. Hughes, 182 Coode Street, Como.

VK6ZPT—F. Dawes-Smith, 19 Field Street, Mt. Lawley.

VK6ZAT—J. R. Jacobs, 8 Shelley Street, Shelley Cove, Riverton.

VK7ZPL—F. L. Powell, 12 Transmere Road, Horsham.

VK8ZDA—J. T. Hart, C/o The Brans, Groote Eylandt.



FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

The National Radio Amateurs' Association (affiliated with the I.A.R.U.) notify the following yards for 1965:

- The Golden Medal and the L.I.C. Diploma to: 1) Savez Radioamatera Jugoslavije (S.R.J.), Zagreb, Yugoslavia, for the humanitarian work carried out during the earthquake at Skopje and the flood of Zagreb. The candidature had been proposed by P.Z.K., the Polish Radio Amateurs' Society. The Prize was taken by Mr. Janex Zindarsic, YUIAA, President of S.R.J.
- Project Oscar, Inc., Los Altos, California, U.S.A., for the design and construction of artificial satellites, of Oscar series. The candidature had been proposed by A.R.R.L., U.S.A. The Prize was taken by Mr. William I. Orr, W6SAI, President of "Project Oscar."
- The winners of 1964 "Columbus Contest": EATLQ, Jaen, Spain; 111Z, Livorno, Italy; I1KE, Savona, Italy.

The Annual S.P.D.X. Contest is scheduled for 15/02 April 2 to 24/02 April 3. Further details from this Bureau.

A full list of awards made available by the Rumanian Central Commission of Radio Sport is available from this Bureau.

Any candidate for C.R.T.A.I.M. between March 2 and March 13 is eligible for an award from the City of Mozambique. Details from this Bureau.

The annual UA DX Contest is to be staged on May 7 and 8. Full details may be had from this Bureau.

Bert Zander VK3PG has let his hair down and left on an extensive overseas tour. He will be absent all 1966 and his itinerary includes extensive coverage of the Americas, Europe and practically all the states of the U.S.A. and the southern portion of Canada.

QSL handlings through the Federal Bureau for the year ended February, 1966, totalled 57,383 cards. This is the highest handling since 1949! Comparative figures are: 1964/3, 53,248; 1963/4, 49,986; 1962/3, 47,578; 1961/2, 44,538.

Stations interested in obtaining the difficult H2Z Award should take part in the H2Z DX Contest, 15/02 Saturday, 30th April, to 17/02 Sunday, May 1st. The rules provide for:

- All hands through 10 metres.
- Used serial number exchange R.S.T. plus 901.
- Each HB contact scores 3 pts. Stations may be contacted once per band.
- Swiss stations will add their canton to their serial number.
- Multiplexer is sum of cantons—a possible 22—working on each band.
- Logs to USKA, 6233 BURON LU, Switzerland, by end of May, 1966.
- Awards to highest scorer in each country.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

COMBINED VK4-VK1 "HAMFEST"

Despite equally weather conditions the VK4-VK1 combined "Hamfest", held at Kingscliff, was voted an absolute success. Including YL's, XYL's and harmonics, a total of 115 people were present.

Hams present were VK4's: ZDW, LX, MW, HZ, WS, SA, CM, QW, RZ, ZWL, HW, ZBN, ZBV, BV, BA, WW, AB, OL, WX; and VK3's: ZV, ZB, ZG, BB, AGE.

A feature of the day was the cutting of the cake specially made for the occasion by Mrs. Marie. The cake was iced and decorated with two true-to-life replicas of Ham rigs, one representing VK2, the other VK4. The rigs were completed with antennae.

Words of welcome were delivered by Stan USA, Eddie ZBB, Fred ZPF, Gordon ZAGE and Alf 4OL. Several mobile rigs were present,

both h.f. and v.h.f. and operated during the day.

Most noticeable during the day was the getting together of the old-timers. Some had not had an eyeball QSO for many years, the others, although old friends on the air, met for the first time. The v.h.f. side of the gathering featured were the lack of technical jargon during the day; the gathering together of YL's and XYL's and the playing of the harmonics on the band. Truly a very sociable gathering.

Immediately after lunch an informal meeting, chaired by ZPF (complete with down and wig according to a local newspaper), was held. It was voted unanimously that the day was a complete success. The meeting then elected a committee to organize a similar event for next year. The committee comprises VK4GGG, 4SA, 4WS, ZBB, 2RK, ZAGE.

Films were taken during the day and featured in news on RTN, Lismore and BTQ7 Brisbane.

A telegram wishing all well for the day was received from the V.I.R.I. Divisional President, Ivan ZAIM, and read to the gathering. Ivan had suggested such a get-together while on a visit up north some months ago.

The success of the day certainly shows that social gatherings of this nature can be of great benefit to Ham Radio. VK4s outnumbered VK3s by two to one. It was felt that the situation will be remedied next time. Thanks must go to George VK4GGG for instigating the idea and to VK4ZBN for the local organizing, also to Marie for the wonderful cake.—Gordon Dowse, Zone 1 Officer, VK2.

SYDNEY XL NEWS

Muriel VK2AIA has just gone into hospital and has had an operation which will keep her there for some time. She is in Marrickville Hospital but will be home by the time this is in print. I'm sure she would be very happy to hear from her many friends.

CENTRAL COAST BRANCH

The Central Coast Branch Field Day was held at Gosford on February 27 and was a tremendous success. There were 110 licensed amateurs, plus a lot of unlicensed amateurs and friends. The weather was perfect with plenty of sunshine and a light breeze. The tourist traps were booked out and many were reported back for afternoon tea in high spirits.

The homebrew equipment was extremely well represented in the Construction Competition. The winning rig was a Swan type transceiver which was beautifully made. The 40 metre sensitivity test for receivers was very interesting and the spectators got as much out of it as the participants. Conditions were fairly good but the Rx had to be very good to hear the low few culls. The contest was especially good this year with everyone getting a lot of value for their 10 cents. The harmonics' test was a very popular feature. This will be a regular feature of the Field Day.

The fox hunts, mobile all-band scramble, adult pedestrian hunt, quizzes, raffie, etc., were all well patronised and in every case someone carried off the prize. The person who guessed the number of cones in the field was especially lucky as there were several dollars' worth of bits and pieces there.

Well, come the day cannot be fully reported without mentioning the magnificent effort of the ten ladies who put on a delicious hot lunch which was nicely served and then served in the lovely new mess hall. The new dining area. The morning and afternoon teas were very welcome also as appetites always seem to be keen. The day was a success. The ladies worked very hard for long hours but I'm sure they enjoyed their work as there is no doubt that they enjoyed the day. Coming from the kitchen department, I am speak-ing for everyone when I say that their mighty effort was greatly appreciated.

We also would like to thank the many firms who so kindly donated prizes which helped considerably with our expenses and most certainly increased the fun for everyone. Following is a list: Mullard-Australia, Ducon, Collins Radio, A.W.V., Philips, International Resistance Co., Empires, A.A. Direct, Radio Headquarters and the Gosford R.S.L. Club. There were also several private donations from club members. We were very pleased to have Ivan VK2AIM, V.I.R.I. Divisional President present with his family and to have him pre-

sent the prizes to the contest winners: All-band Scramble, VK2AH; First 2 m. fox hunt, VK2AWZ; 40 m. harmonic pedestrian hunt, Gorry VK2AN; V.I.R.I. sponsored fox hunt, VK2ZCF; Second 2 m. fox hunt, VK2BKM; 40 m. Rx Sensitivity, VK2PU; Best home-built gear, VK2WU; Guessing Comp. VK2ACT; Raffie, VK2BIO; Adult Pedestrian Hunt, VK2AAH and Lance in a tie.

The Field Day is a joint effort for the Club in which nearly all members help in some way. Ernie VK2EH, President, has asked me to convey his thanks to everyone who helped make the day so successful. A lot of time and thought go into this sort of thing which is not always apparent on the surface when things run along smoothly. The combined effort of many hands was very much appreciated. We were very happy to see so many visitors from far and wide and look forward to seeing you all again next year. Many thanks for coming. Tas. Mob. VK2KS.

VICTORIA

STATE CONVENTION

ARARAT, APRIL 28 AND 29, 1966

The Western Zone President, David ZADS, has promised a very enjoyable and interesting week-end with the following anticipated programme.

Radio Amateurs are expected from far and wide, some coming by plane and some by road, in which radio contact will be available for both plane and mobile at our V.R.I. Hall.

Saturday afternoon will be for those visitors to arrive and check in at the V.R.I. Hall (behind the Shire Offices), where David and his committee will be available to assist in accommodation if booked previously, and for any other matters, but you must be back by 1800 hrs. for dinner. The conference will follow the dinner immediately in the V.R.I. Hall, and to those ladies and visitors not wish-

OBITUARY

FRANK A. PEARSON, VK2ACQ

There was a general feeling of sadness and personal loss when the news became known that Frank Pearson, VK2ACQ, had passed away suddenly at his home at Umina Beach, N.S.W., on Thursday afternoon March 3. Only a few days before he had been assisting in his usual cheery fashion at the Central Coast Branch Field Day. Undoubtedly 5 words he wrote to me to say that no other person has had such a close personal contact with the members of the N.S.W. Divisional Council as Frank. Frank had, with Mrs. Pearson, travelled the length and breadth of the State, meeting members, discussing their problems and advancing their interests. He had held the V.I.R.I. wherever he went.

In addition to this, his work as Morse Trainer of anybody of benefit to the members over Australia but in New Zealand and the Pacific Islands, and the hundreds of letters directed to him, all attested to his constant bear witness to the value of his tape service and the nightly Morse practice which he supervised.

For some months past Frank had been a member of the VK2 Divisional Council, and with his other activities he was ever mindful of anybody of benefit to the members of V.I.A. The success of Council's drive for Zone Officer appointments may be directly attributed to Frank's liaison work in the country areas.

The VK2 Division, and indeed every Division of the Institute, has lost a good friend. It will be difficult to replace him—but his work will serve as a monument for a long time to come.

Frank was a member of Northern Suburbs Crematorium on March 5 was well attended by members of the V.I.A. Divisional Council was represented by the President and both Vice-Presidents, and the sympathy of all members was tendered to Mrs. Pearson and members of the family.

SILENT KEY

It is with deep regret that we record the passing of:

VK2ACQ—F. A. Pearson.

VK4TK—R. P. C. Stack.

to finish about mid-afternoon. New VK3AQD.

QUEENSLAND
TOWNSHIPS AND DISTRICTS

Very sorry to report the passing of another old-timer Bob VK4TK, who joined the ranks of Silent Keys on 12th February. Bob was active for many years in Innisfail where he operated since obtaining his licence in 1932. Bob will be missed by many as he was well known on the VK airwaves.

At long last again able to report that the Radio Club of Townsville is again functioning. At a meeting held at the local "B" Class station, it was noted that there were 18 present. A few old timers plus some new prospective members, and a few future ones. It was decided to again affiliate with the W.I.A. in Brisbane, and a letter was to be sent with the usual subscription. Quite a long discussion ensued re proposed classes and it was held over meantime till the secretary obtained some information from the VK2 Division re courses being

Help was asked by some of the newcomers in making some radio projects. Needless to say, this was received with enthusiasm from the older-timers, who also promised to deliver tapes and pieces where required. Another item under discussion was the joining of the Adult Education so as to avail the Club in obtaining films, etc., showing by the members. Allan was given quite a descriptive lecture on the activities of the local "Moon Watch Society" and the methods used in locating the satellites. Townsville group being one of the few throughout the world in this regard. He also gave a lecture on the use of the radio board and slides. It was really appreciated by all present. Lectures and films promise to be a

Eric 4EL is in hospital and it is to be hoped he is home again ere these notes appear. Merv. 4DV journeyed to the Airport to see Arnold 9AG as he passed through on the way back north. Ted 4EJ and Bert 4LB both in the process of acquiring more headaches as they are building "Transceivers" so as to be mobile as they move about on leave.

Quite pleasing to see two boys from Ayr at the local radio club meeting. No doubt will be trying to have an exchange of visits in the future.

future, same as a few years ago. 73, Bob 4RW.

SOUTH AUSTRALIA

The monthly General Meeting and the Annual Council meeting of the Division were held in the clubrooms on February 22 and 23 respectively. The attendance was to an unusually small attendance of members, and it is not surprising that some should say that blame those that stopped away. There was a time when these two meetings were the only place where the members of the entertainment to be provided, both from the Council and Members, and as I have said, the Council in the past, at the end of the evening the only regret was that this type of meeting was not held more often. However, the meetings turned out to be the most wishy-washy of all times, no argument, no discussion, no entertainment, in fact both the meetings were finished at the almost impossible time of 9.35 p.m. and the time still left for the Alastair in the middle of looking for that elusive fitch. Oh well, I suppose we will have to make do with the old style of meeting, still say the old days were never like this, and it is no credit to any Division when not all members are present at the monthly meetings. In fact, some of the less polite old-timers could be excused for thinking that when the next meeting comes, it is surely coming in, coming out, then apathy is surely coming in.

Joe 5JO bobbed up at the meeting. It appears that he and his XYL called in to see Arch 5XK and both left the XYL's to fend for themselves and galloped off to the meeting hotfoot. Gallantry—thy name is Ama-

Talking of Arch 5XK, and who would, reminds me that rumour has it that he bobbed up at the December meeting, armed with Christmas goodies, and was overcome to find out that the Christmas Do was held in November. He sat in the corner all night, munching

Dave SDS, my favourite Scotsman, noticed at the meeting, and one of my espionage agents tells me that he was having a go on the Admiral's s.s.b. rig, and the contact at the other end told him how well his voice sounded. Dave was so impressed he intends to finish his s.s.b. rig as quickly as possible. The tricks these users of "The Thing" get up

I have been wondering just what sort of weather I am going to get for my annual holidays next month but my fears were set at rest by the news I received at the meeting to the effect that John 5ZJC has left Ceduna, and is now stationed at West Bench. He has promised to give me just the sort of weather that I deserve, which at first thought was very good of him, but on second thoughts I am a little dubious. Just what sort of weather

The VK5 Division, especially the Y.R.S. section, wishes to thank Mr. Royston of the Adelaide Manufacturing Company in Victoria for the donation of the soldering iron which was sent up to the Port Pirie Youth Radio Club and presented to the most promising member of the club. The details of the presentation to the lucky recipient will no doubt be received by the VK5 Division in due course, and it will be a pleasure to refer to

Talking of clubs, I notice that the Elizabeth Amateur Radio Club now has a special QSL card bearing the title "Elizabeth", which was presented to the club by the Elizabeth Council. The front of the card bears the City Crest, and the words "Greetings from Elizabeth, South Australia," with suitable space for details of the contact, and at the back a brief description of the city. Don R. Smith handled the card in his usual efficient manner, and is also holding cards for distribution, which may be obtained by members from any member of the committee, and

Did you notice the amount of space that the VK4 Division had in the Divisional notes of the February issue of the magazine? even though the Publications Committee had said that no notes would be required. Somebody

Talking of the VK4 Division, and I hesitate to do so for fear of reprisals, the VK5 Division recently wrote to all Federal Colleagues for a copy of their Electrical Licensing Act. The suggestion was forwarded to us, "as a query as to whether we were: 1. "Thinking of migrating to the better part of the country?" 2. "Building a do-it-yourself electric chair for PanSy" 3. "Trying to sabotage the coming Federal Convention". Flattery, flattery, that's

W.C.E.N. got from WK4-Such 21 calls rejuvanted on Tuesday. The newly appointed co-ordinator, has managed to infuse into the members all of his drive and enthusiasm. The 40 members of the club, whose writing the official strength is given as at least 45 interested and very keen members, which has enabled a new roster to be printed. The first of these was on the 12th of May, Friday, a full call-out occurred on the following Tuesday when a serious bush-fire threatened the 40 members of the club. The call-out continued for at least 48 hours, and the W.C.E.N. members acquitted themselves in no mean style. The bush fire on Tuesday was managed by Curly SCL, Cliff OFE, Dave SZB, Trevor SZB, Mac GMM and Leith SLG, with the mobles in the fire area being Brian SCA, Geoff SZB, and Les SZB. On Wednesday, the set-up was still in force, with the mobles in the fire area being Brian SCA,

[illegible]

Brian SCA, quite apart from his activities at the fires for W.L.C.E.N., also had his first taste of bush-fires being near to his new QTH, and when I say near, I definitely mean

thereabouts. Rumour has it that he and his XYL Marlene organised a teacup brigade at the start of the blaze, but soon changed to a larger utensil as the flames grew closer. It must have impressed him, because he rang me at midnight to give me the gruesome details.

One of the contributing factors to the early finish of the afore-mentioned monthly meetings was the fact that no ballot was necessary to elect a new board. The only thing that was a matter of nomination being received, and I say again with no hesitation, this is not a good sign. I know that I am an old fuddy-duddy, but I consider it a good sign when a group of people, and if there be no competition, then it means only two things, either the members are more interested in the work of the organization, or they are not very interested one way or the other. There are only two new members for the 1966-67 Council, Al SEK, by virtue of being elected, and one, Ed, who was elected by settling in very nicely, thank you—and Ron SEK. Neither needs any introduction to members, their past activities in the Division speak for themselves. Council at present looks as strong as ever it was, with every member having proved a worker in the past.

Heard KA1888 on 7 Mc. in QSO with— you will remember Gus—Frank SM2 and the other early evening, and he was a bit acidic about having to make out a contest log for a VK contest in G.M.T. He admitted that G.M.T. was necessary for DX and the like but that the life of him could not justify the necessity for G.M.T. in VK contesting. Strangely enough, this subject came up for discussion at a recent VK5 Divisional meeting and the result was an agenda item for the coming Convention in VK4. KA1 will no doubt be present and I know that his comments were received by all present that the men-

Back at the end of 1985 I had almost finished writing for the magazine and had switched all-triode converter, but left it until the new year to polish it up. The article has now found its way into the waste paper basket of my publisher's office. The title of "Mag." was an excellent article on the same subject by Greg Johnston, who described the circuit as being very similar to mine, and almost identical to mine, and I am more than pleased with it, as he is, and I can therefore say that you are right. This is the only sour note in the whole article by Greg, was his statement at the opening, "that his design was different from other designs". Collectively with other than receivers and receiver techniques. Why Greg? Going on the basis of what we have seen, the VKT would also have been a pushover—and VKT would

Phil SNN called in to my QTH the other evening to lend me some R.G.S.B. magazines, and to borrow some 73 magazines. Whilst there with his usual cunning, he introduced the subject of s.s.b. (the "Thing" to you) and during the ensuing conversation he had the audacity to suggest that my evident bias and aptitude for saying nasty things about s.s.b. was only a gimmick to use in the VK5 notes.

Met a friend of mine this week who is also working in the same establishment as Les, 5NJ, who informed me with evident relish that Les wished to be remembered to me, and also to tell me that he had gone s.b. My friend did not have the slightest idea of the significance of the message that he was passing on, but judging by the sneer on his face when he had been well rehearsed, Les, how could

you? Had a long talk to Marshal Hider at the meeting, who incidentally dates his association with the VKS Division back as far as 1934, or even earlier. An ex-Councillor, the secretary, and a definite hard worker for the division, he never bothered during his long service to VKS to get a ticket, mainly because of being too busy and other distractions, but has at last decided to give it a go and will sit for the next examination. Nice work, OM, but it would have been a lot easier 40 years or so ago! See you on the air

Heard Les 5LC in contact with a VK4 the other day. How is that Les? Three references to three months in the notes after your reported lapse of five years--anyway, during the QSO up bobbed a VK2, I missed his call sign, but he turned out to be none other than an ex-VK5 in Frank Hill, who by the way, worked alongside me at the B.B.S. (Best Broadcasting Station in VK) just after the last war, and then migrated to VK2, married and had a lovely family.

Our usually genial and smiling Publications Officer, Uncle Tom STL, was noticed at the V.I.P. table before the meeting surrounded by his pile of publications, but looking decidedly sour and dejected. When asked the reason

concerning miniaturisation of receivers and transmitters, finally coming out with the statement that he had been experimenting with a small transceiver for W.C.E.N., which could be hurriedly rushed to the aid of the emergency and set up in a jiffy. His troubles apparently had been many and varied, although his last prototype had been small enough to be carried by a large camel or possibly a three-quarter size elephant, although he felt that he would be able to get it even a little smaller with a squeeze. He was cut to the quick with my suggestion that his appearance at the scene of any emergency, accompanied either by a camel or an elephant, would be enough to end any emergency, but when I said, as I was leaving the meeting, "Good-night Elephant!" Boy, he gave me an excellent imitation of the caretaker's Alsatian, so much so, that I waited not upon my orders to depart!

Our revered and respected President, Ross KPF, can sit back on his laurels now that the first year of his reign has ended, especially as he now holds the record of having been chairman of the shortest annual general meeting in the history of the Division. I wonder just what his secret technique is!

A bird of one name, Arthur SHY, at the meeting before the last he came and sat near Albert SZL and myself, and proceeded as usual to give me my usual earbashing on the merits and demerits of "The Thing." Although my ear was trailing on the ground when he finished, I was able to resist his attack, but he hit me on the back as to his solidarity. How simple can I be? He came up to me at the meeting this month and nonchalantly remarked, "I see that Albert SZL has become a member of the s.s.b. fraternity." "He was so interested in our conversation at the last meeting that he bought a commercial job and is tickled with the results. That settles it. I am going to sit in a corner all by myself at future meetings, nobody is going to use me as a sponge for 'The Thing.' I must be getting old. I will be failing to the thimble and pea eat before long!

Well, this has been such a dismal month, one way and another, that I am going to stop now—why is everybody cheering?—even though

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the notes may be a little shorter than usual, ahem, but don't despair, this is only a temporary feeling of frustration, and I will be back next month, bigger and better than ever. The publications committee and the Editor being willing. What's that? Why worry to come back?—Throw that VK4 out!

73 de 3FS—PanSy to you.

— — — — —

TASMANIA

By now our Annual General Meeting and Dinner is over, and your new Council has been elected. On their behalf I thank you for the confidence you have shown, and as in the past I know the business of the Institute is in good hands.

We must of course say farewell to our three Councillors who did not seek re-election this year, they are Tiny TD, Ted TEB and Charlie TK5—all key men in Council for the last couple of years at least. Thanks to each of you from all of us for a job well done. Let's hope we'll see you back one day.

Keith TRX has gone aboard, with a home-brew rig. He brought along some photos to show around at the March meeting, and it appears to be a f.b. rig, built in true TRX construction. Tom TAL is in the process of building a 40 ft. rig at the moment, but it won't be long before we hear "Uncle Tom" on the bands again (not before time either).

Ian TZZ is in the process of acquiring himself a 40 ft. tower, which he tells me he's going to top with a 3-band quad—as if he doesn't work enough DX now—he'll never go to bed at all with his hand on the dial.

Our loss is someone else's gain, and this is very true in the case of Doug TDD who is leaving us for the moment, not to move to the city of Canberra. Good luck Doug, hope to hear you on the bands in the not too distant future. We'll always be interested to hear from you.

With official approval for slow Morse transmissions to hand we have three sessions each week on the 92.2 band, one on the 100.1 band. The time is 8 p.m. on Sunday, Tuesday and Thursday evenings. Don't forget chaps, you can't have the best of both worlds, let the operators know, we had trouble once before, the operators spent hours at his rig, and to my knowledge he never even knew, not even knows now, whether anybody took advantage of the service—most disheartening I think you will agree.

Easter is upon us again, which of course means Convention time, all conventions are important, but this year's should be more important than most, as the matter of the service should be, we hope, finalised. Then it's up to the Attorney-General. We wish the conference this year to be the best yet held, and incidentally, we may lose our Federal Councillor, Ted TEL, in the latter part of the year. He tells me there's a chance he may go to Darwin, but he has been told many times in the past where he can go, but no one ever thought he'd take us seriously—for VKT's sake we all hope you can delay it for another year if not longer. Ted, but as someone once said, "When you gotta go ya gotta go," and that's about what I'll say now.

Hope everyone who attended the annual meeting and dinner enjoyed themselves, and we'll see a few more still at next year's function. 73, Geoff TZAS.

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